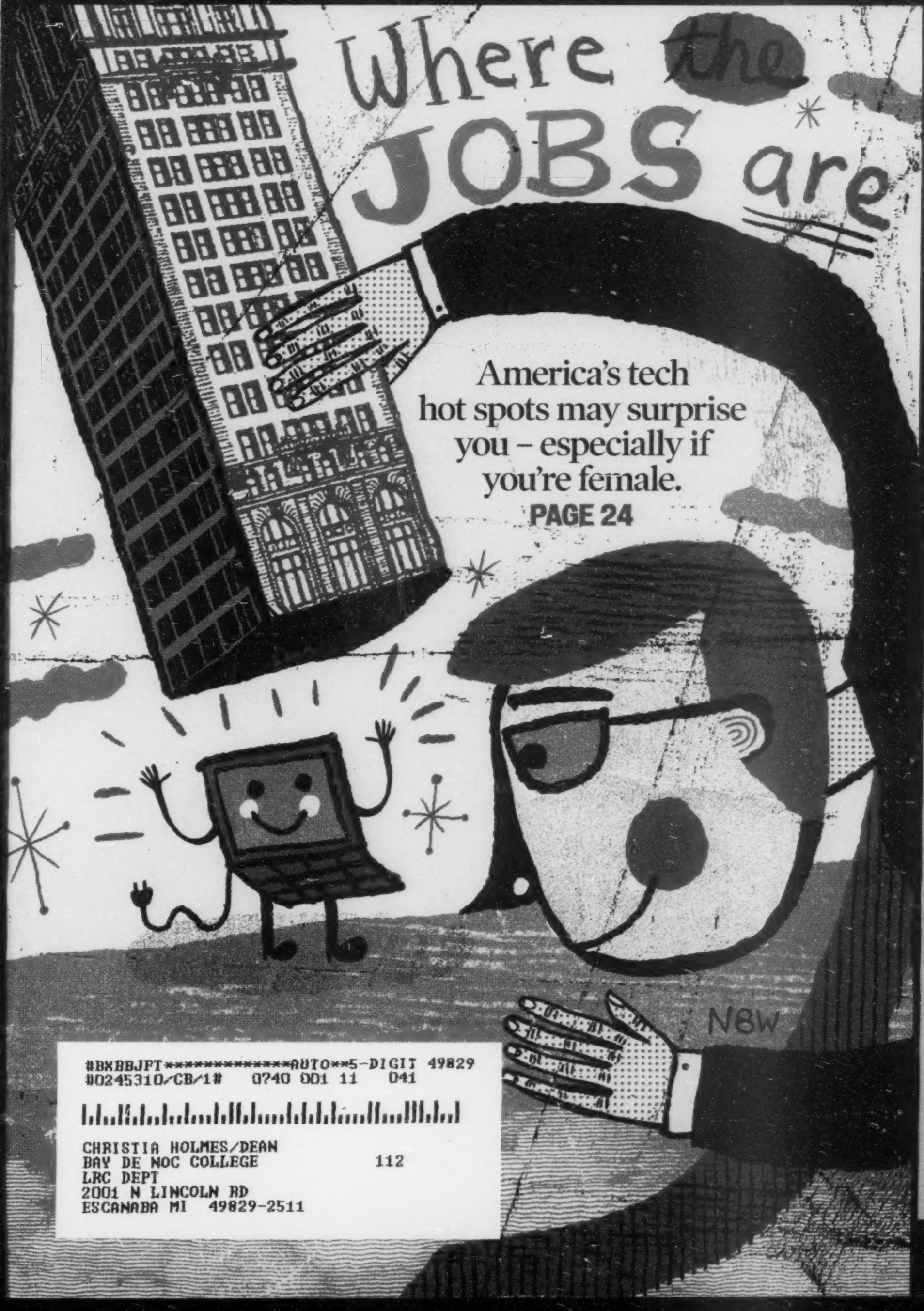
The Grill: Linus Torvalds says open source isn't meant to be an anti-[illegible]osoft movement; it's just a better model for writing software. PAGE 20

Bay College
10/22/2007

COMPUTERWORLD



America's tech hot spots may surprise you – especially if you're female. PAGE 24

#BXBBJPT**************AUTO**5-DIGIT 49829
#0245310/CB/1# 0740 001 11 041
CHRISTIA HOLMES/DEAN
BAY DE NOC COLLEGE 112
LRC DEPT
2001 N LINCOLN RD
ESCANABA MI 49829-2511

Inside

OCTOBER 22, 2007
VOL. 41, NO. 43 $5/COPY

News Analysis
Colleges look to control rampant data growth. PAGE 12
Microsoft dials into the communications market. PAGE 16

Opinions
Bring a little bit of Tiger Woods into IT and practice, practice, practice. PAGE 23
A passionate debate: AC or DC power in the data center? PAGE 42

Careers
The scoop on rural outsourcing. Plus, how to deal with first-day jitters. PAGE 44

Don't Miss . . .
Crossing the digital divide: The ambitious effort to connect the Navajo Nation to the Internet. PAGE 29
Top IT questions to ask about impending mergers and acquisitions. PAGE 32

COMPUTERWORLD.COM

IBM, the IBM logo, WebSphere and Take Back Control are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. ©2007 IBM Corporation. All rights reserved.

_INFRASTRUCTURE LOG

_DAY 79: This is out of control! Our IT environment is rigid and inflexible. Our business needs are changing, but our environment isn't built to change with them. We can't adapt. Oh, no...I was afraid of this. We're so rigid we're stuck in time.

_*Infrastructurus prehistoricus.* I've read about this.

_DAY 80: I'm taking back control with IBM SOA solutions. Now we can align business goals with our IT. We have the hardware, software and services we need to respond to change. Strategy, planning and implementation are in tune with our specific business needs. Now we can deploy and update business processes faster and more efficiently.

_Goodbye, rigid past. Hello, flexible future.

Take the SOA business value assessment at:
IBM.COM/**TAKEBACKCONTROL**/SOA

Inside

COMPUTERWORLD ■ OCTOBER 22, 2007

■ NEWS DIGEST

7 Data de-duplication is a hot topic at the **Storage Networking World** conference in Dallas. | **IBM** uses **RFID** to track the attendees of a Las Vegas conference.

8 Microsoft's shared-source licenses get the **Open Source Initiative's** OK. | **Google** plans to offer **e-health** services.

10 Gov. Schwarzenegger says "hasta la vista" to a bill that would have held merchants liable for banks' **data breach costs.**

■ NEWS ANALYSIS

12 Colleges Struggle to Keep Up With Data Demands. An explosion of data on college campuses forces IT administrators to upgrade storage systems quickly.

16 Microsoft Makes Unified Communications Call. The company tries to make a splash with the launch of Office Communications Server, but some wonder what a software vendor is doing in the telecommunications market.

■ OPINION

4 Editor's Note: **Don Tennant** hears an important message on ethics from an unlikely source: Frank Abagnale of *Catch Me If You Can* fame.

23 Virginia Robbins thinks practice would benefit IT professionals as much as it does pro athletes like Tiger Woods and Jerry Rice.

42 Robert L. Mitchell has noticed that DC power distribution is being taken seriously as an alternative to AC in data centers. Will Edison finally get his revenge?

48 Frankly Speaking: **Frank Hayes** envisions 12 IT tools that would help him work better. So where are they?

■ DEPARTMENTS

17 On the Mark: **Mark Hall** reports that the last barrier to adopting software as a service may have just come down.

20 The Grill: Linux originator **Linus Torvalds** talks about Linux (which interests him), Microsoft (which doesn't) and the good life (which includes deer munching on the roses in his yard).

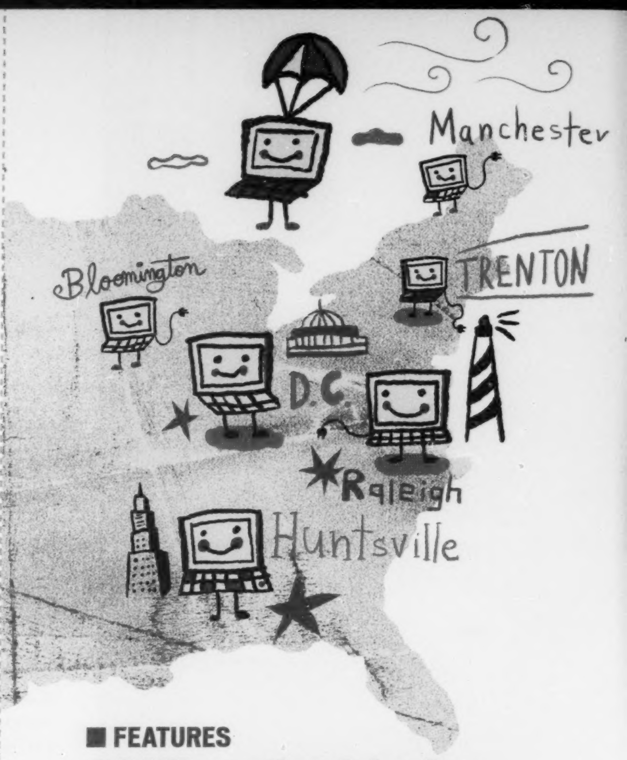
34 Security Manager's Journal: **Indian Audit Comes With a Silver Lining.** Mathias Thurman hires an Indian firm to audit one of his company's partners in India. The assessment reveals some problems, but they're small, and the auditor's a keeper.

44 Career Watch: The scoop on rural outsourcing; and how to handle those first-day-on-the-job jitters.

47 Shark Tank: A secretary's boss thinks he knows how to fix her bad RAM problem. Fortunately, the real problem prevents him from giving his plan a try.

■ ALSO IN THIS ISSUE

Letters	6
Company Index	47



■ FEATURES

24 Where the Jobs Are

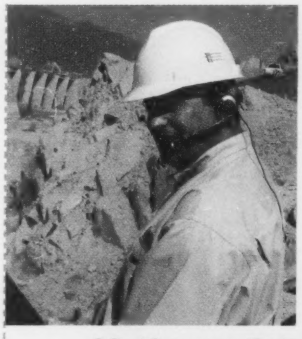
COVER STORY: A new Census Bureau report shows that the real U.S. tech hot spots aren't necessarily where you think they are. And when it comes to women in IT, Silicon Valley is the pits.

29 Tribal Link

The Navajo Nation's "Internet to the Hogan" project will eventually offer voice, video and data connections to government agencies serving the tribe's 250,000 citizens.

32 How to Manage An Acquisition

IT MENTOR: Your corporation has acquired another company – and you get to integrate the IT systems. Don't worry – project expert Tom Barnett has a plan.

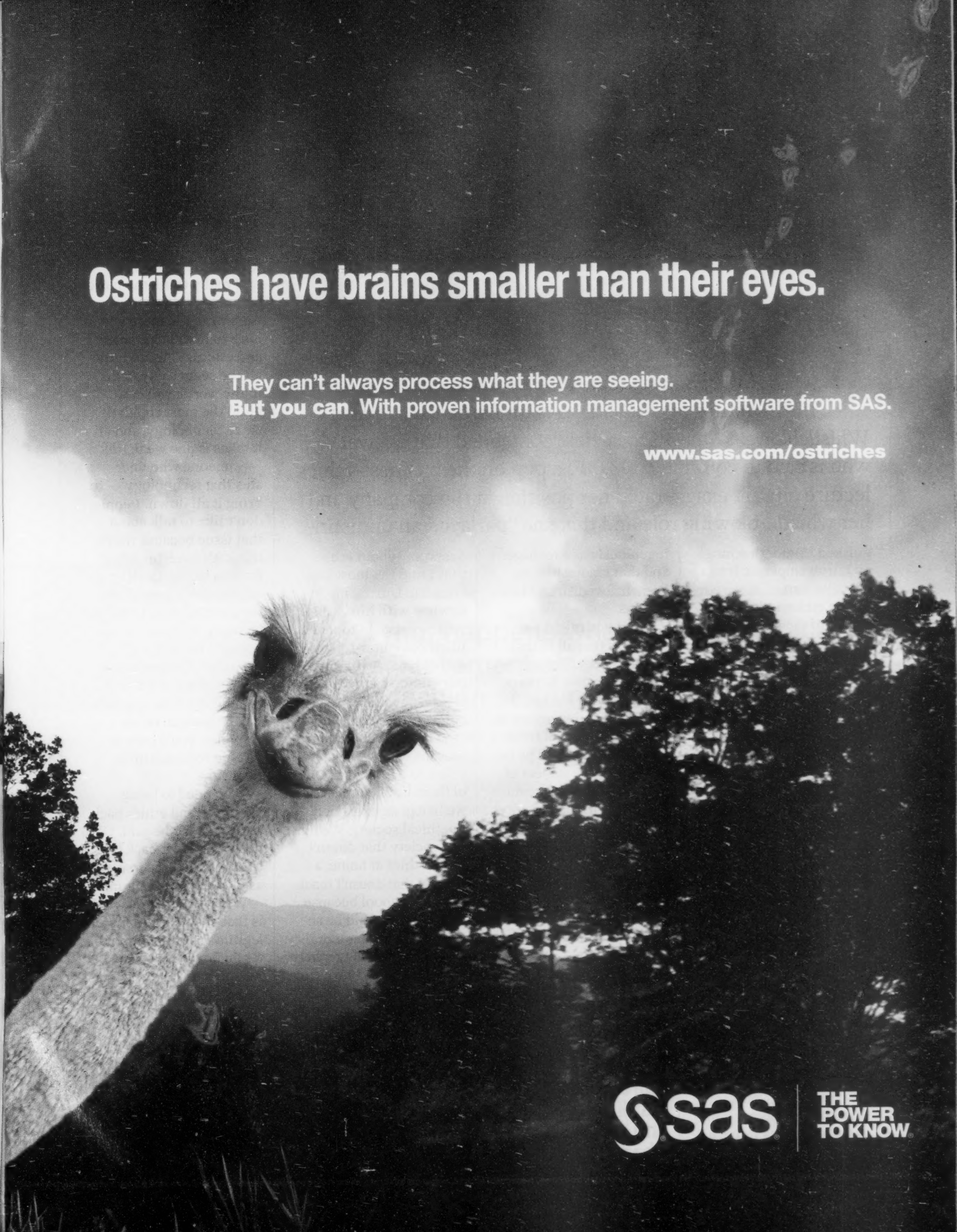


36 No Strings Attached

What do a construction company operating in the remote mountains of Mexico and a bank in the lowlands of Louisiana have in common? They've both used wireless voice and data systems to save time and effort, increase profits and even improve security.

⌃ Raul Orozco uses IP telephony at a dam construction site.

COVER AND MAP ILLUSTRATION ABOVE BY NATE WILLIAMS



Ostriches have brains smaller than their eyes.

They can't always process what they are seeing.
But you can. With proven information management software from SAS.

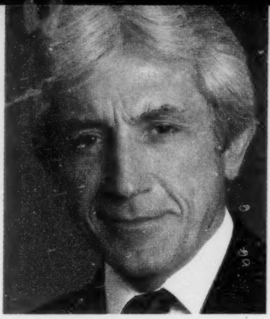
www.sas.com/ostriches

sas THE POWER TO KNOW

EDITOR'S NOTE

Don Tennant

The Real Ethics Guru



ON MY WAY to Dallas to attend *Computerworld*'s Storage Networking World conference last week, I read an article in *USA Today* about Lynn Brewer, author of *Confessions of an Enron Executive: A Whistleblower's Story.* The article contended that Brewer, who is said to command $13,000 a pop on the business-ethics lecture circuit, exaggerated her position at the company and her whistle-blowing role and that she "parlayed an undistinguished 32-month stint as an Enron employee into a lucrative career in the corporate ethics industry."

One of the *USA Today* reporter's sources was a former Enron employee who suggested that Brewer is an imposter. "It reminds me of that movie with Leo DiCaprio with Pan Am," the article quoted Brewer's colleague as saying, noting that the colleague was "referring to *Catch Me If You Can*, a story about a high school dropout who passes himself off as an airline pilot."

As you probably know, that story is a true one. The high school dropout is Frank Abagnale, who just happened to be a keynote speaker at our conference in Dallas and who spoke with me at length in an interview just prior to his keynote.

If you read the book or saw the movie, you know that Abagnale's core con game was check fraud, an activity that he mastered ingeniously as a teenager, and that landed him in French, Swedish and U.S. prisons.

What you might not realize is that all of that happened decades ago, and that for the past 32 years, Abagnale has worked for the FBI, training agents in areas such as bank fraud and identity theft. The latter topic is the subject of his fifth and most recent book on criminal activity, *Stealing Your Life*. Like Brewer, Abagnale has a high-profile place on the lecture circuit, speaking to corporate audiences about privacy and security risks and what can be done to mitigate them.

But it's what Abagnale has to say about ethics that I find the most intriguing. During my interview with him, I asked what we can do to make illicit computer-related activity a less attractive pursuit for young people. His response warrants recounting here:

'The more technology there is in the world, the more you have to instill character and ethics,' Abagnale said.

"There are about four reasons why we have crime to begin with. One of them is, of course, that we live in an extremely unethical society. We live in a society that doesn't teach ethics at home, a society that doesn't teach ethics in school because the teacher would be accused of teaching morality. We live in a society where you can't find a four-year college course on ethics. . . . So today you have a lot of young people who have no character, no ethics, and they find no problem in defrauding somebody or stealing from somebody or cheating somebody. Until we change that, crime is just going to get easier, faster, more global, harder to detect.

"I really think the more technology there is in the world, the more you have to instill character and ethics. You can build all the security systems in the world; you can build the most sophisticated technology, and all it takes is one weak link — someone who operates that technology — to bring it all down. People don't like to talk about that issue because they think it's oversimplified. But the fact is, in all my experience, that's where the problem lies. Until that changes, crime is always going to be with us."

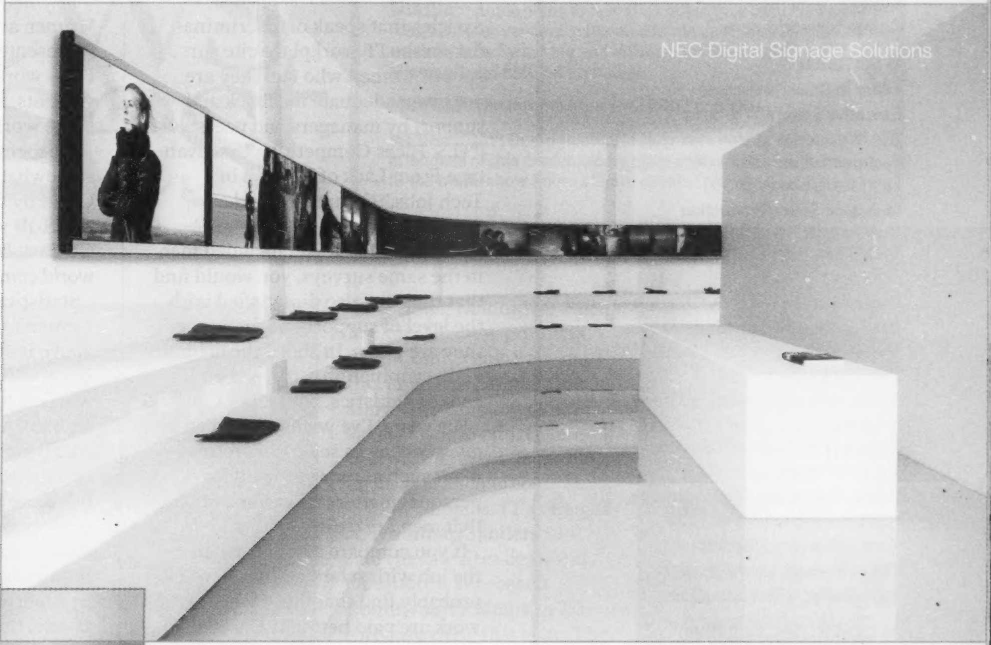
I asked Abagnale how we can bring about that change. To fully appreciate the passion of his response, you'd have to be able to look him in the eyes.

"You need to bring character and ethics back into schools," he said. "You need to bring it back into colleges and universities as part of a curriculum."

What's interesting to me is that despite the apparent legitimacy of the imposter analogy, in a sense, Brewer's Enron colleague couldn't have been further off base in comparing Brewer to Abagnale.

It turns out the former con man is the real ethics guru. ■

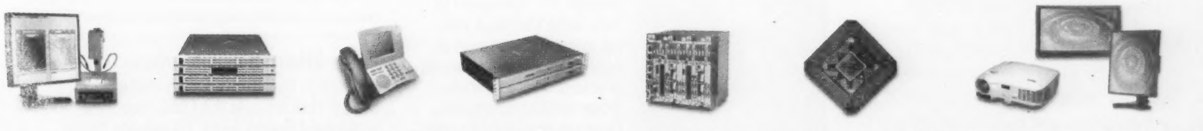
Don Tennant *is editor in chief of* Computerworld. *Contact him at don_tennant@computerworld.com.*


NEC Digital Signage Solutions

What happens when a technological achievement also happens to be a fashion statement?

Whether they are a strong message for brands in flagship stores, a bright centerpiece for high-end home entertainment systems, or an image carrier in business conference rooms and control centers, digital signage solutions from NEC, a global leader in IT and networking, offer professional-grade components and network connectivity that reflect a new age in visual communications – where style and substance converge. NEC. **Empowering you through innovation.**

www.necus.com/digitalsignage


IT SERVICES AND SOFTWARE
ENTERPRISE NETWORKING AND COMPUTING
SEMICONDUCTORS
IMAGING AND DISPLAYS

©NEC Corporation 2007. NEC and the NEC logo are registered trademarks of NEC Corporation.
Empowered by Innovation is a trademark of NEC Corporation.

Empowered by Innovation NEC

COMPUTERWORLD

P.O. Box 9171, 1 Speen Street
Framingham, MA 01701
(508) 879-0700
Computerworld.com

■ EDITORIAL

Editor in Chief Don Tennant
Executive Editors Mitch Betts, Julia King (events)
Features Editors Kathleen Melymuka, Ellen Fanning (special reports)
Managing Editor/Production Michele Lee DeFilippo
Assistant Managing Editor/Production Bob Rawson
Design Director Stephanie Faucher
National Correspondents Gary Anthes, Thomas Hoffman, Julia King, Robert L. Mitchell
Editor at Large Mark Hall
Senior News Columnist Frank Hayes
Art Director April O'Connor
Associate Art Director Owen Edwards
Research Manager Mari Keefe
Senior Copy Editors Eugene Demaitre, Monica Sambataro
Copy Editor Donna Sussman
Office Manager Linda Gorgone
Contributing Editor Jamie Eckle

■ COMPUTERWORLD.COM

Online Editorial Director Scot Finnie
Online Managing Editor Sharon Machlis
Online Features Editor Valerie Potter
Senior Online Projects Editor Ian Lamont
News Editors Ken Mingis, Craig Stedman
Assistant News Editors Mike Bucken, Marian Prokop
Reporters Brian Fonseca, Matt Hamblen, Heather Havenstein, Gregg Keizer, Eric Lai, Linda Rosencrance, Patrick Thibodeau, Jaikumar Vijayan, Todd R. Weiss
E-mail Newsletters Editor David Ramel
Online Channel Editors Johanna Ambrosio, Angela Gunn, Lucas Mearian, Marian Prokop, David Ramel
Online Projects Editor Joyce Carpenter
Associate Editor, Community Ken Gagné
Contributing Editors Preston Gralla, David Haskin

■ CONTACTS

Phone numbers, e-mail addresses and reporters' beats are available online at *Computerworld.com* (see Contacts link at the bottom of the home page).
Letters to the Editor Send to letters@computerworld.com. Include an address and phone number for immediate verification. Letters will be edited for brevity and clarity.
24-hour news tip hot line (508) 620-7716
Subscriptions and back issues (888) 559-7327, cw@omeda.com
Reprints/permissions Erik Eberz, (717) 399-1900 ext. 150, computerworld@reprintbuyer.com

■ LETTERS

Thoughts on Women in the IT Workplace

Articles that speak of discrimination in the IT workplace cite surveys of women who feel they are not given adequate feedback and support by managers and peers ["U.S. Faces Competitive Disadvantage From Lack of Women in Tech Jobs," *Computerworld.com*, Sept. 25].

I suspect that if you included men in the same surveys, you would find that they are also dissatisfied with the level of support and feedback they are given. In short, the claims of discrimination are based on cooked statistics, not facts.

For years, I've watched women in my workplaces seek special treatment such as extra time off for personal matters and then complain that men are treated better.

If you compare actual time on the job with salary statistics, you'll probably find that those who do the work are paid better. It has little to do with gender.

■ **Gus Ferrara,** *Scranton, Pa.*

Women are not numerically well represented in numerous aspects of IT — workforce, academia, college students, H-1B visa workers and offshore workers.

I suspect the percentages are somewhat skewed on the West Coast by the gender disparity in the H-1B visa count ["Women in IT Go East, Data Shows," *Computerworld.com*, Oct. 2].

Statistics show that the number of women in the IT areas mentioned above is shrinking. This is happening at a time when we need more IT workers to offset demand and the retirement of baby boomers.

Unhappily or happily, depending on how you look at it, the answer is not more men or women workers, or more outsourcing: It is better development tools and methods. I just hope most of these tool are "Made in America."

■ **John Howland,** *president, Seattle chapter of SIM, North Bend, Wash.*

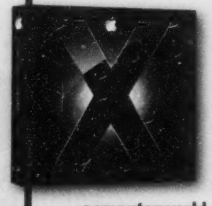
COMPUTERWORLD.COM

Technology's 10 Most Mortifying Moments

Tech history is full of moments that make you say "ouch." We present our favorites and ask you to vote on the most mortifying moment of all.
computerworld.com/networking

The Ultimate Tweaker's Guide to Windows

Our tips, tricks and hacks will let you customize XP and Vista in a multitude of ways.
computerworld.com/software



Get Ready for the Leap to Leopard

FAQ: With the clock ticking toward the release of Apple's Leopard this week, time is growing short for those looking to upgrade. Here are questions to ponder as you prep for Friday.
computerworld.com/mac

Palm Centro Is Satisfying, Cheap And a Bit Chunky

REVIEW: Palm's new Centro smart phone doesn't excel in any one area, but it provides most of the features most people want, in an extremely easy-to-use device.
computerworld.com/mobilewireless

Five Hurdles for WiMax to Overcome

Announcements from Sprint Nextel's Xohm division have buoyed hopes for WiMax deployments, but there are obstacles to full adoption, including questions about cost and how consumers and businesses will use the technology.
computerworld.com/mobilewireless

Five Diagrams Redux

OPINION: The co-chairman of the UML 2 task force in the OMG responds to Michael Hugos' Sept. 24 column taking Unified Modeling Language to task.
computerworld.com/development

News Digest

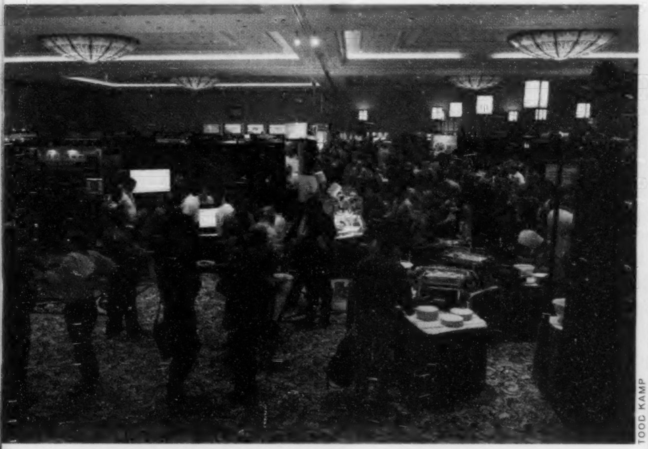
FIND THE FULL STORIES AT
COMPUTERWORLD.COM

THE WEEK AHEAD

MONDAY: Apple plans to report its latest quarterly financial results. Other vendors scheduled to file earnings reports this week include Symantec and VMware on Wednesday, and Microsoft and EMC on Thursday.

MONDAY: The Interop New York 2007 conference opens.

WEDNESDAY: OutsourceWorld New York gets under way; attendees of this conference and Interop will have access to the trade-show floors at both events.



TODD KAMP

STORAGE

De-duplication Helps IT Manage Data Growth

DALLAS

COMBINING BACKUP software and de-duplication technology within virtual server environments can help companies better deal with exploding data growth, according to users attending the Storage Networking World conference (pictured above) here last week. The conference is jointly run by *Computerworld* and the Storage Networking Industry Association.

John Robitzsch, senior manager of infrastructure systems at InComm Holdings Inc. in Atlanta, said his company deployed new backup software and de-duplication products over the past three months to corral massive data growth across remote sites resulting from multiple acquisitions.

InComm, a provider of point-of-sale activation technology and prepaid products such as phone cards, has about 650 mostly Windows-based servers — including 400 virtual ones running in three VMware ESX Server v2.5.3 clusters.

The company was forced to develop a new backup plan when its NetBackup software from Symantec Corp. couldn't keep up with the data growth, he said.

He noted that unlike NetBackup, the new products from CommVault Systems Inc. and Data Domain Inc. allow the company to manage its backup efforts centrally rather than depending on each branch office.

John Thomas, IT manager at Troutman Sanders LLP, said the law firm deployed Oceanport, N.J.-based CommVault's Simpana 7.0 software early this year. The software is used with 18 de-duplication appliances from Santa Clara, Calif.-based Data Domain to run backup-to-disk operations across 15 remote offices.

Troutman Sanders can manage its companywide storage using the new tools and VMware, which is deployed only at the firm's Atlanta headquarters, Thomas said.

Integrated backup and de-duplication with VMware "will [also] play a role in our ability to provide fault tolerance and disaster recovery for hosted systems," he said.

Tony Asaro, an analyst at Milford, Mass.-based Enterprise Strategy Group Inc., called companies like InComm and Troutman Sanders early adopters because it's still "early in the process" for users to achieve the full benefits of backup and de-duplication in VMware environments.

— Brian Fonseca

WIRELESS

IBM Uses RFID to Track Conference Attendees

LAS VEGAS – At its Information on Demand conference here, IBM used name tags equipped with radio frequency identification technology to track attendance at sessions and meals.

The company said it would remove the RFID chips from the name tags of people who didn't want them, but only 2% of the 6,500 attendees took it up on the offer, said Mary Ann Alberry, IBM's conference manager.

Attendee Bill Miller, an independent DB2 consultant working in Frankfurt, said he has "a somewhat negative opinion" of the tags because of RFID's potential for abuse.

Alberry said data collected from the tags could help IBM plan future conferences. For example, organizers could use it to create sessions based on attendee interests.

– PATRICK THIBODEAU

WHERE?
HELLO
my name is
WHO?
WHEN?
WHAT?

ISTOCKPHOTO.COM

SOFTWARE

Open-Source Group OKs Two Microsoft Licenses

THE Open Source Initiative (OSI) has given its stamp of approval to two of Microsoft Corp.'s so-called shared-source software licenses, making them valid means of distributing open-source technologies.

OSI President Michael Tiemann wrote in a blog posting last Monday that there was "overwhelming (though not unanimous) consensus from the open-source community that these licenses satisfied the 10 criteria of the open-source definition."

The Portland, Ore.-based OSI is in charge of vetting licenses for use with open-source software. Tiemann, who is vice president of open-source affairs at Red Hat Inc., wrote that there was a "vigorous and thorough" discussion among OSI members before the two Microsoft licenses were OK'd at an Oct. 10 board meeting.

Microsoft submitted two of its three shared-source licenses to the OSI in July, just two months after executives at the software vendor claimed that Linux and other open-source technologies infringe on 235 of its patents.

In an interview, Tiemann acknowledged that some members of the open-source community balked at the very idea of the OSI accepting licenses from Microsoft. The group had to field about 400 e-mail messages about its initial decision to allow the two licenses to go through the approval process, Tiemann noted. But in the end, the licenses spoke for themselves, he said.

Tiemann cautioned, though, that if Microsoft officials are harboring any thoughts of trying to embed royalty-bearing patented technology in software covered by either of the two licenses, they should think twice. "I think they'll see that 400 messages is just the beginning," he said.

Bill Hilf, general manager of Windows Server marketing and platform strategy at Microsoft, said in a statement that the approval of the licenses "concludes a tremendous learning experience for Microsoft, and I look forward to our continued participation in the open-source community."

In a blog posting, OSI board member Matt Asay wrote, "This shows Microsoft the correct way to engage in open source: through the front door, rather than through back-door patent FUD" — by which he meant spreading fear, uncertainty and doubt.

— Eric Lai, with Elizabeth Montalbano of the IDG News Service

Short Takes

Hewlett-Packard Co. has agreed in principle to pay $117.5 million to settle a federal stock-options backdating suit against Mercury Interactive Corp., a company HP acquired in 2006. The agreement must be approved by a federal judge.

SAP AG has agreed to buy Yasu Technologies in Hyderabad, India, to help beef up the business process management capabilities in its NetWeaver middleware. Terms of the deal were not disclosed.

The Nielsen Co. plans to outsource some IT and business processes to Mumbai, India-based Tata Consultancy Services Ltd. Among other things, the 10-year, $1.2 billion contract calls for Tata to create financial and human resources processes for Nielsen.

Wal-Mart Stores Inc. has announced plans to install SAP ERP Financials software in phases over the next three years. The software will replace some older systems. Terms of the deal weren't disclosed.

INTERNET

Google to Add E-health Services, Exec Says

SAN FRANCISCO – A Google Inc. executive last week said that the company plans to support the "storage and movement" of electronic health records.

The disclosure at the Web 2.0 Summit here came less than two weeks after Microsoft Corp. unveiled plans to offer e-health services.

Marissa Mayer, vice president of search products and user experience at Google, provided scant details about the plan but said that paper-based medical records are no longer practical.

"It doesn't make sense to generate this volume of information on paper," Mayer said. "It should be something that is digital. People should have control over their own records."

The project will be "a huge endeavor," she acknowledged, noting that "it will take a lot of breakthroughs in digitization, [but] this is something we are committed to." Google will disclose more information "in the months to come," she said.

Liz Boehm, an analyst at Forrester Research Inc., noted that the issue of security and privacy "remains the elephant in the room whenever Google talks about personal health information storage."

– HEATHER HAVENSTEIN

It doesn't make sense to generate this volume of information on paper. It should be something that is digital.

MARISSA MAYER, VICE PRESIDENT, GOOGLE INC.

IBM
CLAWTASTIC!
PRIZE OU

_INFRASTRUCTURE LOG

_DAY 69: All we need is one specific piece of info. Gil almost had it, but his hand cramped. How are we supposed to find trusted business information when these massive volumes of conflicting info keep pouring in?

_Gil just grabbed a stuffed panda.

_DAY 71: The answer: IBM solutions for leveraging information. Now we can cleanse info and standardize source data fields for consistency and accuracy. I can create a single, accurate and unified record of info across our source systems. Everyone can make better decisions.

_Just in time—I think we ran out of quarters.

Information Management

Download the Innovation and Competitive Advantage white paper:
IBM.COM/**TAKEBACKCONTROL**/ACCURATE

IBM, the IBM logo and Take Back Control are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries.
© 2007 IBM Corporation. All rights reserved.

NEWS DIGEST

LEGISLATION/REGULATION

Schwarzenegger Says 'Hasta la Vista' to State Bill on Data Breach Costs

OLIVIER LABAN-MATTEI

« The governor's veto shields retailers from reimbursing banks.

IN A decision that likely was a big relief to retailers nationwide, California Gov. Arnold Schwarzenegger vetoed a bill that would have made merchants in his state liable for the costs incurred by financial institutions as a result of retail data breaches.

In a statement explaining his Oct. 13 veto, Schwarzenegger said that the measure "attempts to legislate in an area where the marketplace has already assigned responsibilities and liabilities that provide for the protection of consumers."

Approving the bill might have put California law "in conflict with private-sector data security standards," Schwarzenegger added.

AB 779 would have required retailers affected by breaches to reimburse banks and credit unions for the costs of alerting customers and reissuing credit and debit cards. It would also have prohibited merchants from storing some information and required them to use so-called strong authentication technologies to protect cardholder data.

The California Credit Union League, the bill's chief proponent, expressed disappointment at the veto but vowed to try to get the measure passed in the state's next legislative session.

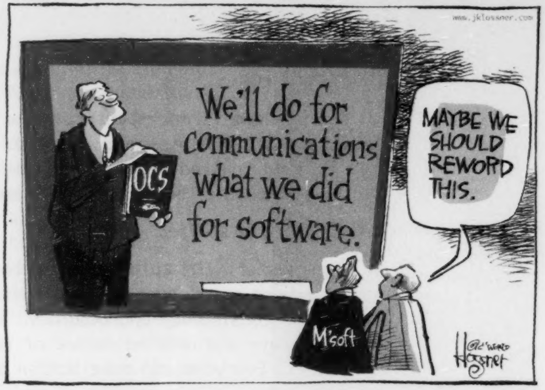
The California bill's demise means that Minnesota remains the only state to have passed a data breach cost-reimbursement law.

Retail industry groups have complained that such measures would unfairly penalize merchants that already pay for fraud-related costs via the so-called interchange fees that credit card companies assess on each transaction.

— Jaikumar Vijayan

BETWEEN THE LINES

By John Klossner


www.jklossner.com
We'll do for communications what we did for software.
OCS
MAYBE WE SHOULD REWORD THIS.
M'soft
©C'world
Klossner

BENCHMARKS LAST WEEK

Six states and the District of Columbia filed a court motion urging a federal judge to hold Microsoft Corp. to its 2002 antitrust settlement for another five years. Key parts of the consent decree are set to expire Nov. 12.

Apple Inc. reversed course and confirmed that it will open the iPhone device to outside developers via a software development kit that the company plans to release in February.

20 YEARS AGO: Computer-driven "program trading" led to a stock-market crash in which the Dow Jones average dropped 508 points.

Global Dispatches

Microsoft Drops Antitrust Appeal

SEOUL, SOUTH KOREA – Microsoft Corp. last week said that it has filed a motion to withdraw its appeal of a South Korean antitrust ruling against the company.

The appeal, filed with the Seoul High Court in March, sought the revocation of a 2005 Korea Fair Trade Commission ruling that Microsoft had violated the country's fair-trade regulations. The commission had fined Microsoft 33 billion Korean won ($36 million U.S.).

Microsoft declined to comment on the withdrawal and noted that it "remains committed" to the South Korean market.

Korea's investigation of Microsoft was initiated after complaints were filed by two rivals, Daum Communications Corp. in Seoul and RealNetworks Inc. in Seattle. Microsoft has since reached settlements with both companies.

Grant Gross,
IDG News Service

Chinese Police To Get Windows Smart Phones

BEIJING – In December, China's Ministry of Public Security will equip police in two provinces with smart phones based on Microsoft's Windows Mobile software.

China TechFaith Wireless Communication Technology Inc. will design and manufacture the handsets, which will be equipped with GPS capabilities and scanners for identification cards.

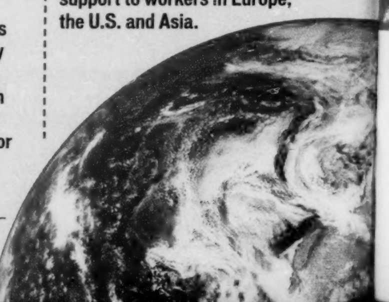
The phones will incorporate security software developed by Shenzhen Security Software Science and Technology Development Co., according to TechFaith.

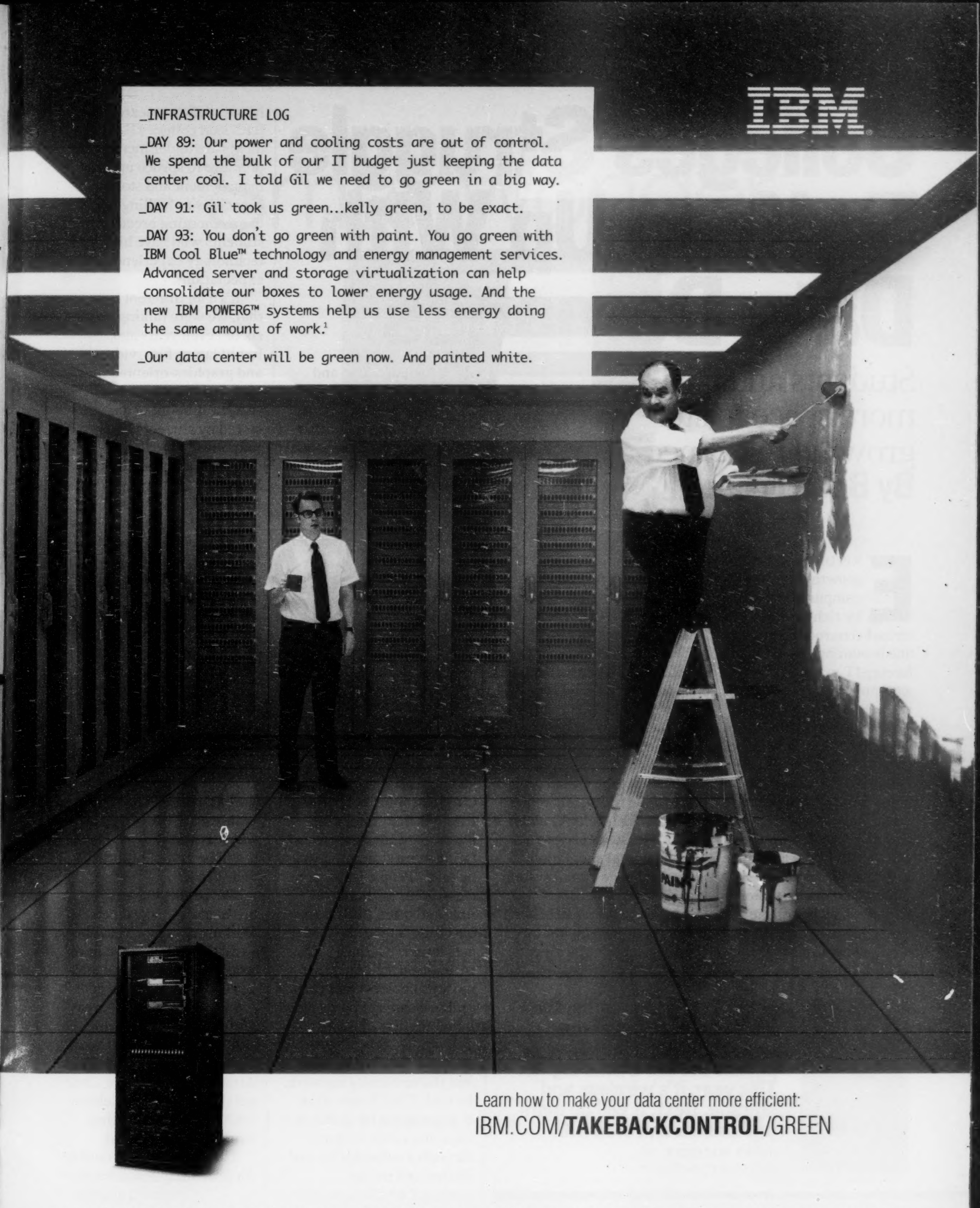
Beijing-based TechFaith did not disclose further details of the contract or say which provinces will use the technology.

Sumner Lemon,
IDG News Service

BRIEFLY NOTED

Elekta AB, a Stockholm-based provider of medical technology, has awarded a $21 million outsourcing contract to Unisys Corp. Blue Bell, Pa.-based Unisys will manage Elekta's global IT infrastructure and provide IT support to workers in Europe, the U.S. and Asia.





IBM

_INFRASTRUCTURE LOG

_DAY 89: Our power and cooling costs are out of control. We spend the bulk of our IT budget just keeping the data center cool. I told Gil we need to go green in a big way.

_DAY 91: Gil took us green...kelly green, to be exact.

_DAY 93: You don't go green with paint. You go green with IBM Cool Blue™ technology and energy management services. Advanced server and storage virtualization can help consolidate our boxes to lower energy usage. And the new IBM POWER6™ systems help us use less energy doing the same amount of work.[1]

_Our data center will be green now. And painted white.

Learn how to make your data center more efficient:
IBM.COM/**TAKEBACKCONTROL**/GREEN

[1] Requires Advanced Power Virtualization, which is optional and available at an additional charge. IBM, the IBM logo, Cool Blue, POWER6 and Take Back Control are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. ©2007 IBM Corporation. All rights reserved.

Colleges Struggle To Keep Up With Data Demands

Students and faculty require more space to store fast-growing multimedia files.

By Brian Fonseca

EXPLODING DATA growth on college campuses, driven by rich media, virtual classrooms and mushrooming e-mail files, is forcing IT managers to find ways to quickly boost storage capacity.

IT managers at the University of North Texas in Denton were surprised by the rapid growth of e-mail files when they started replacing Novell Inc.'s GroupWise software with Microsoft Corp.'s Exchange in February, said Dave Gerlach, computer systems manager for the college's Computing & Information Technology Center.

IT managers had expected that the 6,500 Exchange e-mail boxes would require 3.5TB of storage capacity, up from 700GB needed for the older system, Gerlach said. "Then we get there and we [need] 7.6TB, which just blew me away," he said.

Factoring in extra storage needed for fail-over, storage administrators finally determined that the e-mail project would ultimately require 15.2TB of capacity, Gerlach said. The school began a gradual implementation of the Exchange e-mail system earlier this month.

Much of the added e-mail storage needs can be traced to ever-larger attachments, which include video and MP3 files and PowerPoint presentations, Gerlach said.

> **"Every 12 months, the expectation of the newest group of students pushes the bar a little higher. This year, it's wireless and storage. Next, it will be more multimedia and Web 2.0.**
>
> **JERRY WALDRON,** CIO, SALISBURY UNIVERSITY

To meet those and other storage demands, the school replaced its Hitachi Lightning 9960 and EMC Clariion CX 600 systems with four arrays from Eden Prairie, Minn.-based Compellent Technologies Inc.

The new arrays provide a storage capacity of 142TB, including 22.5TB for e-mail, Gerlach noted. "Data is exploding, and we're trying to keep up," he said.

He estimated the cost of the new storage systems at about $8,400 per terabyte.

In addition to e-mail, a growing Oracle database and increased use of WebCT classroom applications from Washington-based Blackboard Inc. are necessitating more storage capacity, he said. "People want more classrooms available online, and more students are enrolling, so the classroom gets larger," Gerlach said. In addition, he noted that most professors want their online classes to be stored indefinitely.

Overall, Gerlach's group manages roughly 300 servers and the university network, he said. The IT operation is responsible for performing schoolwide backups through a subscription and chargeback model.

Doug Chandler, an analyst at market research firm IDC, said college IT departments are under increasing pressure to spruce up data management and storage capacities as "selling points" to an emerging breed of students who have high-end technology experience and expectations.

"It's a lot different now than we were talking about six or seven years ago, [with] larger files, videos and graphics-oriented files," said Chandler. He added that the amount of data now stored by students is "astounding."

Jerry Waldron, CIO at Salisbury University in Maryland, said his school is experiencing annual data growth of 15% to 20%. The university's storage systems currently hold about 15TB of data.

He agreed that the university must satisfy increasingly technology-savvy students and faculty, who are demanding more storage space for both personal and classroom use.

"Every 12 months, the expectation of the newest group of students pushes the bar a little higher," said Waldron. "This year, it's wireless and storage. Next, it will be more multimedia and Web 2.0.

"We're keeping an eye on things like social networking sites like YouTube — all these things you never would've thought we'd look at a few years ago," he added.

Salisbury's storage-area network (SAN) runs an EMC Clariion CX600 array with Advanced Technology Attachment and Fibre Channel disks alongside Celerra NS702 network-attached storage, Waldron said.

The IT unit is responsible for providing e-mail services

Continued on page 14

**Fujitsu recommends
Windows Vista® Business.**

Small wonder.

All the functionality. Half the size.

The new 1.5-pound Fujitsu U800 Ultra-Mobile PC is massively versatile and wonderfully small. With its Intel® Pentium® M processor, you can easily launch Microsoft Vista® applications and YouTube™ videos and view them on a vivid 5.6-inch monitor/touch-screen. Share data and peripherals effortlessly with built-in Bluetooth® technology. And keep all your data ultra-safe with biometric security. It's even Wireless WAN enabled* and includes a webcam. To learn more go to **us.fujitsu.com/computers/smallwonder**

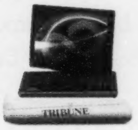
FUJITSU

THE POSSIBILITIES ARE INFINITE

Family of Notebooks

U800 Ultra-Mobile PC

P1600 Portable PC



*T2000 Tablet PC***

*T4200 Tablet PC***

** Fujitsu T2000 and T4000 series Tablet PCs feature Intel® Core™ 2 Duo processor technology.

U800 Ultra-Mobile PC

- *Runs on Genuine Windows Vista® Business*
- *1.5lbs*
- *5 hour battery life*
- *40GB hard drive*
- *Webcam included*
- *Bluetooth®*
- *5.6" screen*
- *Wireless WAN enabled**

intel
Centrino® Duo
Core™ 2 Duo
inside™

©2007 Fujitsu Computer Systems Corporation. All rights reserved. Fujitsu, the Fujitsu logo and LifeBook are registered trademarks of Fujitsu Limited. Centrino, Intel, Intel Core, Core inside, the Centrino logo, Pentium M, and the Intel logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation. All other trademarks are the property of their respective owners.
*Wireless WAN not available on all models.

Continued from page 12

to about 12,000 people at the university, Waldron said.

Each faculty member is provided with 2GB of e-mail storage capacity, he said. "This has become a big part of how they teach," he noted. "We've expanded our storage system to accommodate them as much as we can."

Salisbury's 7,500 students each get 200MB of free e-mail storage capacity, Waldron said.

To keep up with the increasing demands, Salisbury will soon add an 8TB mini-SAN system from Avid Technology Inc. in Tewksbury, Mass., that will also support a new 20,000-square-foot media center that's slated to open next September.

David Medeiros, senior systems engineer at California State University, San Marcos, said his school's data storage needs are growing by about 30% annually.

The biggest challenges for the university's IT storage unit include managing the increasing number of video files in its systems and meeting users' demands for instant access to their data, Medeiros said. "It's definitely changed. People want access to their stuff all the time, and they don't want quotas. It's a challenge to keep all of that up," he noted.

The university runs mostly Network Appliance Inc. systems to store 24TB of data, Medeiros said. It uses a NetApp FAS3050C to store all student home directories, as well as Microsoft Exchange and Oracle databases, he said.

The college runs a NetApp R200 near-line storage array to back up the FAS3050C and a separate R200 array to store video files, Medeiros said.

He noted that he plans to roll out new technology by next spring that will enable the university to boot virtualized systems from the 3050C device by attaching Fibre Channel to a VMware ESX server.

Corey Grone, IT manager at the University of Pittsburgh's Graduate School of Public Health, blames thumb drives and external hard drives for the explosive growth of data on college campuses. It's a "scary" issue that requires increasing attention from IT managers, he said.

In tandem with a project to outsource his school's e-mail storage to an online backup and storage provider (see story, next page), the university recently implemented a shared file server.

Grone said he hopes that the two initiatives will help lessen escalating storage maintenance and support burdens for IT. ■

> **"People want more classrooms available online, and more students are enrolling, so the classroom gets larger.**
>
> **DAVE GERLACH,** COMPUTER SYSTEMS MANAGER, UNIVERSITY OF NORTH TEXAS

The bulletproof vest of the IT action hero.

SOME SCHOOLS TURN TO HOSTED STORAGE

Grone turned to online storage for unified backups.

Some colleges are turning to hosted online storage services to keep up with the increasing storage needs of faculty and students.

The University of Pittsburgh's Graduate School of Public Health last month started rolling out the MozyPro online backup service from EMC Corp.'s Berkeley Data Systems Inc. unit for its faculty and staff.

The school turned to Salt Lake City-based Berkeley after a consultant called its lack of unified backup systems a "weakness" and a "concern," said IT manager Corey Grone. The online service is not available to students, who will continue to be offered a small amount of storage on a central Unix system, he added.

The university has purchased 90 MozyPro licenses and 200GB of storage, which Grone said he may increase if demand grows.

Starting last month, Duke University in Durham, N.C., began a fee-based program to allow students, staff and faculty to store personal data on the Connected Backup for PC service from Boston-based Iron Mountain Inc.

Users can purchase as much capacity as they need, said Billy Herndon, systems vice president for enterprise information and services at Duke's Office of Information Technology. Duke lets students store 5GB of university-related files without charge on its own WebFiles online storage system, Herndon said. The free online service uses Duke's distributed network file system, he noted.

> **“We didn't want to necessarily go through reinventing the wheel, because resources are limited.**
>
> **BILLY HERNDON,**
> SYSTEMS VICE PRESIDENT FOR ENTERPRISE INFORMATION AND SERVICES, DUKE UNIVERSITY

Just last month the school launched WebFiles for collaboration, coursework, video streaming and Web site construction, Herndon said.

Duke turned to online storage to increase capacity without affecting infrastructure or IT operations, he said. "We didn't want to necessarily go through reinventing the wheel, because resources are limited," Herndon noted.

IDC analyst Doug Chandler said schools can improve their data security by using a single online service.

– **BRIAN FONSECA**

Some days, it feels like you're being hit from every angle.

The CEO wants the overall view of the business. The CFO wants the variance to plan. And half a dozen business managers want their reports. Now.

That's why you need Cognos. We are the experts in performance management, delivering the only complete system on a single software platform, including reporting, analysis, scorecarding, planning, and forecasting. It's highly intuitive, giving all your users easy access to information and total confidence in their decisions. Unlike SAP and Oracle, we have 17 years of proven performance management experience. And with over 23,000 satisfied customers, we know how to make you look like the hero you are.

Proceed with confidence. To find out more, visit **www.cognos.com/actionhero** today.

COGNOS®
THE NEXT LEVEL OF PERFORMANCE™

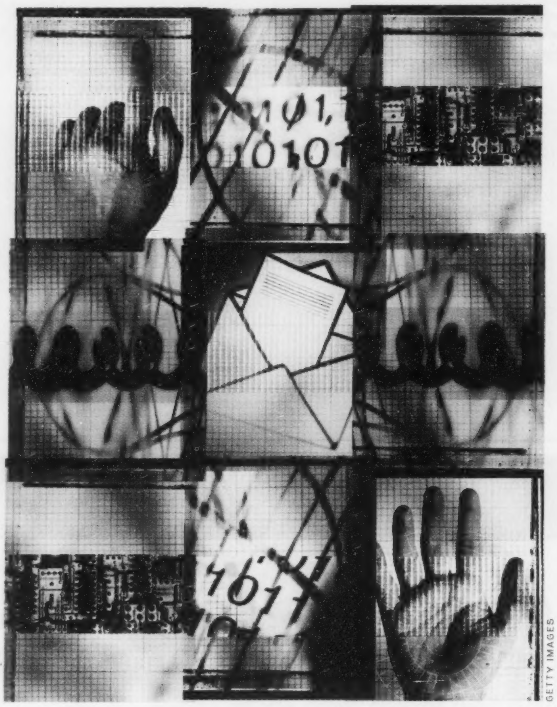
Copyright © 2007 Cognos Incorporated. All rights reserved.

Microsoft Makes Unified Communications Call

The vendor hopes to entice users with new technology that supports VoIP, video calls, IM and webconferencing. **By Eric Lai and Matt Hamblen**

MICROSOFT CORP. did its level best to make sure that last week's launch of Office Communications Server (OCS) 2007 and other unified communications software wasn't a case of a tree falling in the forest with no one around to hear it.

Microsoft Chairman Bill Gates was the keynote speaker at a press conference that included dozens of supporting announcements by telecommunications partners. The event also featured testimonials from 155 companies that have beta-tested OCS. The new software, which succeeds Live Communications Server (LCS) 2005, supports voice over IP (VoIP), video calling, instant messaging and webconferencing.


GETTY IMAGES

But various concerns have been voiced about OCS. In some cases, Microsoft's rivals are just trying to sow fear, uncertainty and doubt. But in others, legitimate issues are being raised. For instance, there's the question of whether companies should entrust their telephone systems to a software vendor.

Microsoft executives maintain that OCS will provide audio quality that is as good as or better than what users can get from conventional private branch exchange (PBX) systems.

Oyvind Kaldestad, IT director at OCS beta tester Lionbridge Technologies Inc., backed up Microsoft's claim. Lionbridge, a vendor of localization software in Waltham, Mass., installed LCS 2005 last year and upgraded to an early version of OCS nine months ago. Now its 4,300 employees make 400,000 minutes' worth of VoIP calls per month. The voice quality is better than what workers get on conventional phone networks when they make calls between many of Lionbridge's international offices, Kaldestad said.

With OCS, companies can centralize hundreds of scattered PBX systems onto just one or two servers. But another issue for Microsoft is whether software running on a Windows box can be as reliable as PBXs are.

Windows' lack of reliability "is totally out there as a perception and a message," acknowledged Kim Akers, Microsoft's general manager of unified communications. But she pointed out that rival products, most notably Cisco Systems Inc.'s Unified Communications Manager, also run on Windows.

Dustin Hannifin, a systems engineer who has been beta-testing OCS at accounting firm Crowe Chizek and Co. in Oak Brook, Ill., said that if the software is architected properly, it may be safer than PBXs are.

"The problem I have with traditional PBX systems is that while they are generally rock-solid, when they fail, there is no redundancy plan," Hannifin said. "At least with OCS, you can back things up."

Kaldestad said Lionbridge has had 99.88% scheduled uptime on OCS. The company runs two load-balanced OCS servers at a single data center, which lets it keep one running while the other is patched or rebooted. And if both were to fail at the same time, Kaldestad said he is confident that he could bring up a replacement system within several hours.

Some of the features in OCS are strong selling points. Hannifin said that Crowe Chizek employees who have seen him testing the software "are just going nuts" over Microsoft's built-in Office Live Meeting technology, which lets end users quickly set up ad hoc videoconferences.

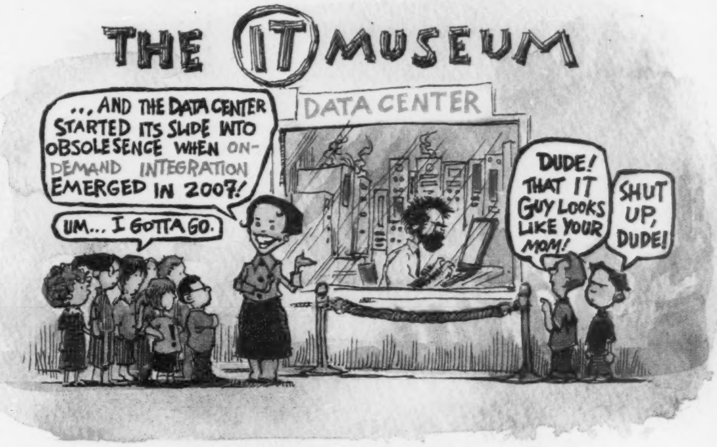
Lionbridge spent about $100,000 on VoIP phones and headsets when it installed OCS. But the savings from using VoIP and Office Live Meeting enabled the company to recoup its investment in "less than two months," Kaldestad said

On the other hand, OCS doesn't have the ability to identify the location of people who call E911, and it doesn't allow users to make free VoIP calls from Wi-Fi-enabled cell phones.

Ferris Research Inc. analyst David Sengupta said he expects that OCS will initially be adopted primarily by "Microsoft-centric organizations willing to put up with some growing pains over the coming year or two." ■

On the Mark

HOT TRENDS ■ NEW PRODUCT NEWS ■ INDUSTRY BUZZ BY MARK HALL


THE IT MUSEUM
DATA CENTER
...AND THE DATA CENTER STARTED ITS SLIDE INTO OBSOLESENCE WHEN ON-DEMAND INTEGRATION EMERGED IN 2007!
UM... I GOTTA GO.
DUDE! THAT IT GUY LOOKS LIKE YOUR MOM!
SHUT UP, DUDE!

MATTHEW FAULKNER

SaaS Fills Its Holes

BOB MOUL, CEO of Boomi Inc. in Berwyn, Pa., says that one by one, the roadblocks that software as a service has faced from skeptical IT execs have fallen. First, there was security. Could SaaS vendors protect proprietary data? Virtually every on-demand service can pass that test these days, and some, such as that of BoardVantage Inc., which was mentioned here last week, even get SAS 70 Type II security certification. Then it was customization that stifled SaaS growth, Moul says. That, too, has been conquered, as on-demand software has moved from a single rigid instance of code in the early years to today's flexible versions that can be adjusted to fit corporate and even individual preferences. Lastly, he says, there have been problems with integration — both between on-premises apps and SaaS, and among on-demand services themselves. That, too, is no longer a barrier, Moul claims, saying, "We take integration off the table as a sales hurdle."

In December, Boomi will release its integration-as-a-service operations. Now in beta, Boomi On Demand lets IT link different IP-based applications together through a menu of predefined connectors. Through Boomi's Visual Process Designer, you use icons to map out your applications' workflow. Then you create a runtime module called an Atom, a bit of code that runs on your site to communicate with the integration processing happening in Boomi's data center. Pricing will be based on the number and type of connectors used.

MOUL: Application integration can be an on-demand service.

Shift Contact Center Software to Service

Up to now, building a contact center — whether for inbound or outbound calling — could be a pricey, time-consuming process of deploying and configuring a mix of servers and software. Not anymore, contends Louis Summe, CEO of LiveVox Inc. in San Francisco. He says voice-over-IP technology married with his company's LiveVox Voice Portal on-demand service "radically alters the contact center cost equation" because it eliminates the need for on-premises hardware. Summe says the portal tool can be easily integrated with other online services, such as Salesforce.com, as well as with your internal applications. (And there's always Boomi if you get in a bind.) Summe says specialized VoIP handsets are going the way of, well, on-premises software. His take: Softphones combined with Bluetooth headsets are the coming thing for call center workers. Pricing for the LiveVox service is implementation-specific.

$3.3B
Yankee Group Research Inc.'s prediction for VoIP market size in 2010.

Get Procurement As a Service, Too

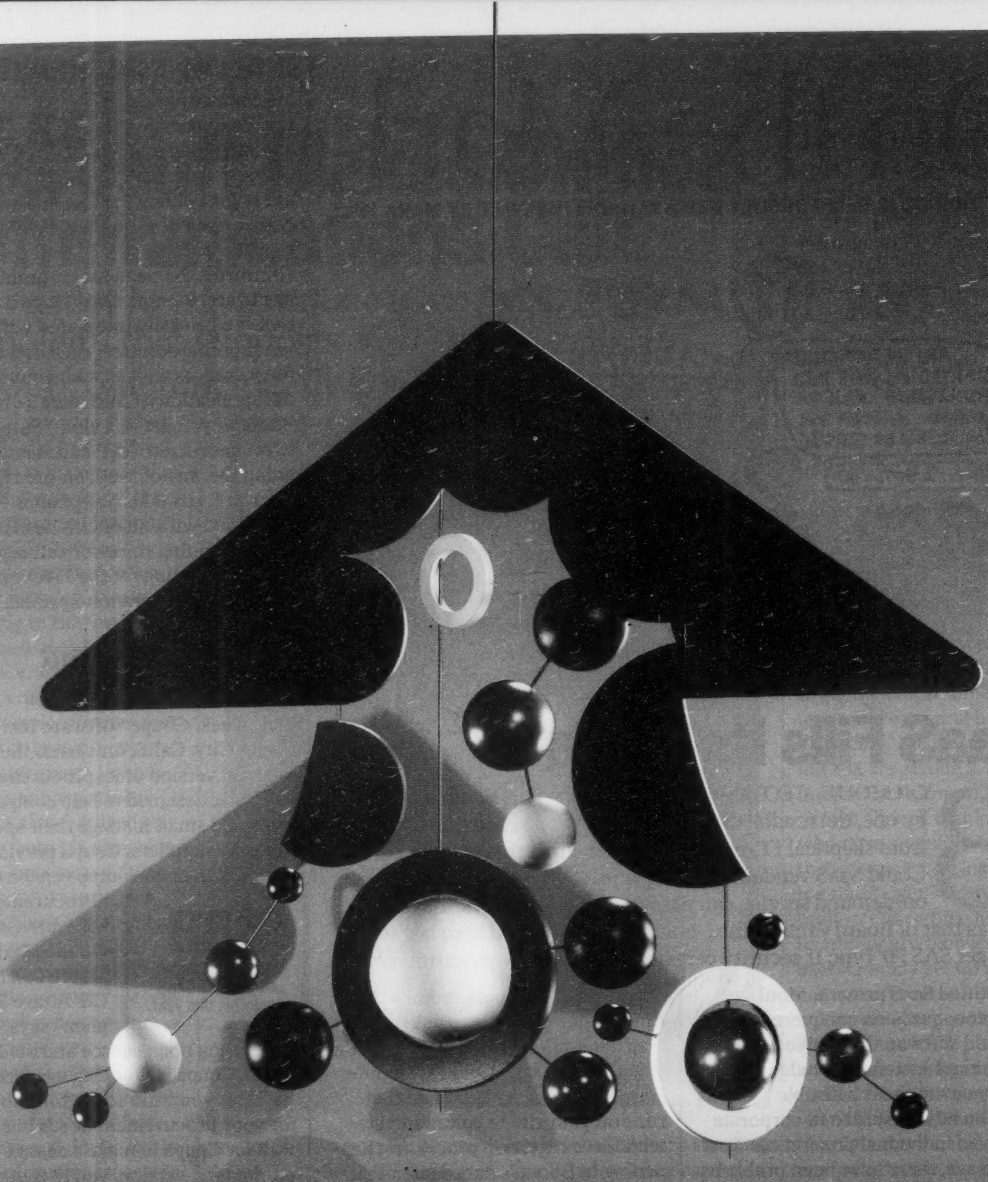
This week, Coupa Software Inc. in Foster City, Calif., unleashes the on-demand version of its procurement software, designed to help companies large and small manage their spending with suppliers. Coupa previously released an open-source version of its eProcurement software (see On the Mark, March 26). Now, CEO Dave Stephens says, by combining open source and on demand, Coupa is breaking new ground for IT: If you want something special for your procurement needs but can't wait for Coupa to make a change to its on-demand version, you're free to do so. You can then submit your revised code to Coupa, which might include it in the next SaaS version. Pricing starts at $2,495 per year for 10 users.

$8B
IDC's estimate for overall SaaS revenues this year.

Dump PC Apps

While you're unloading software from your data center and end users' PCs, consider replacing those desktops with a new class of thin clients available this week from San Jose-based Wyse Technology Inc. Its G class of devices can handle up to six monitors from a single unit. Pricing starts at $629. ■

Wyse's thin client nixes the need for multiple PCs.



ALTERNATIVE THINKING ABOUT BUSINESS AND TECHNOLOGY:

Build In Cohesive Maneuverability.
(Translation: Dare Anyone To Keep Up With You.)

Alternative Thinking About Virtualization

Alternative thinking is pushing the boundaries of virtualization beyond servers and doing the same thing with your entire network, really.

It's deciding on a whim (i.e., strategic initiative) to add blades, move a server or reconfigure everything—without touching a single cable.

It's controlling both your virtual machines and your physical machines in one fell swoop to maximize productivity.

It's combining the power and maneuverability of virtualization with an HP BladeSystem to create the competitive edge to do what you want to do in business—win.

It's demanding hard, cold business metrics and working with HP to reach them.

Technology for better business outcomes.

hp.com/alt

©2007 Hewlett-Packard Development Company, L.P.

PHOTOS BY BRIAN SMALE

THE GRILL

Linus Torvalds

The Finnish creator of **Linux** says **open-source software isn't really an anti-Microsoft movement;** it's just a better model for getting the job done.

Dossier

Name: Linus Torvalds

Title: Linux Foundation fellow and creator of Linux

Organization: The Linux Foundation

Location: Beaverton, Ore.

Last book read: Roger Penrose's *The Road to Reality*

First job: "I guess you could say that Linux has been my job for a long while now. I was fresh out of the university when I joined Transmeta, so I guess that counts as my first 'real' job."

Childhood dream job: "Scientist. Not that I really thought of it as a 'job.' "

Gadget he can't live without: "I'd like to change that around to 'Gadget I can damn well live without,' the answer being a cell phone. Those things are damn annoying. I dislike even traditional phones (give me e-mail or other message-based mediums anytime), but cell phones just take that irritation to a whole new level."

Linus Torvalds *was only 22 in 1991 when he decided to share with friends and colleagues the code of Linux, the new operating system he had created. The University of Helsinki computer science student couldn't have imagined the revolution his decision was about to ignite.*

What did you want from the public release of Linux? It certainly wasn't money, since the original copyright was very strict about that. I didn't think that Linux would become as big and popular as it is now, so it wasn't really fame, either. I'd like to say it was for fun.

The releasing itself wasn't particularly fun, but I was really looking for feedback and comments. I was hoping to get people to tell me what they thought needed improvement or what was good, and thus make the project more interesting for me.

It worked beautifully. I've been doing Linux for 16 years, and it's still interesting, exactly because I made it

Continued on page 22

I WORK IN A MIXED-IT ENVIRONMENT. NOW MY OPERATING SYSTEMS CAN TOO.

INTEROP ABILITY

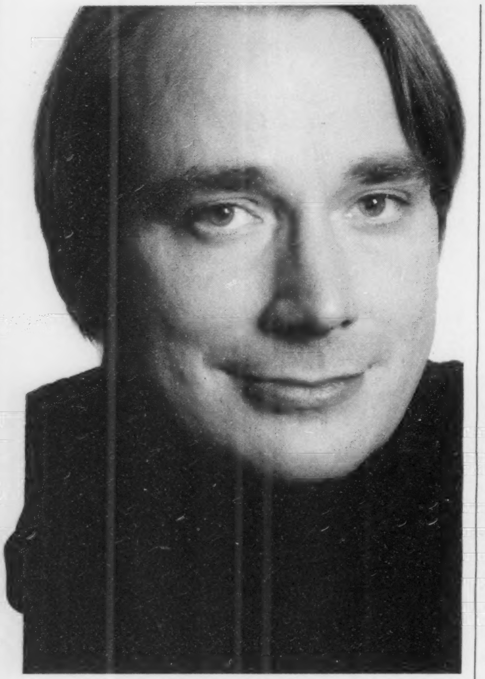
DOWNLOAD THE COLLABORATION ROADMAP

It's the ability to have Microsoft® Windows Server® and SUSE® Linux Enterprise Server from Novell® work together. And the ability to run both with more confidence. It's Microsoft and Novell working together to reduce costs and complexity with new solutions for virtualization, directory integration, systems management, and office document translators—each with clearly defined intellectual property rights. So you can take compromise out of the data center and put simplicity and efficiency in.

Download the collaboration roadmap at **www.moreinterop.com**

Novell® Microsoft®

Copyright © 2007 Novell, Inc. and Microsoft Corporation. All Rights Reserved. Novell, the Novell logo and SUSE are registered trademarks of Novell, Inc. in the United States and other countries. *Linux is a registered trademark of Linus Torvalds. Microsoft and Windows Server are trademarks of the Microsoft group of companies.



> **“Microsoft has a really hard time competing on technical merit, and they traditionally have instead tried to compete on price, but that obviously doesn’t work either, not against open source.**

Continued from page 20

available publicly and asked for feedback.

How did Linux, as a product, benefit by being released as it was? Linux really wouldn’t have gone anywhere interesting at all if it hadn’t been released as an open-source product. I also think that the change to the GPLv2 from my original “no money” license was important, because the commercial interests were actually very important from the beginning. The commercial distributions were what drove a lot of the nice installers and pushed people to improve usability. You need a balance between pure technology and the kinds of pressures you get from users through the market.

Don’t you feel you missed the chance of a lifetime by not creating a proprietary Linux? No. I’m actually perfectly well off. I live in a good-size house, with a nice yard, with deer occasionally showing up and eating the roses. My wife likes the roses more; I like the deer more, so we don’t really mind. I’ve got three kids, and I know I can pay for their education. What more do I need?

Being a good programmer actually pays pretty well; being acknowledged as world-class pays even better. I simply didn’t need to start a commercial company. And it’s just about the least interesting thing I can imagine. So instead, I have a very good life, doing something that I think is really interesting and that I think actually matters for people, not just me. And that makes me feel good.

What’s more important, Linux’s huge user base or its large developer base? I don’t think of them as separate entities. I think that any program is only as good as it is useful, so in that sense, the user base is the most important part, because a program without users is kind of missing the whole point. Computers and software are just tools. It doesn’t matter how technically good a tool is, until you actually have somebody who uses it.

But at the same time, a certain type of user is also the kind of person who gets things done and likes programming. And open source enables that kind of special user to do things he otherwise couldn’t do.

The private sector is not adopting Linux and free software as fast as was first hoped. Why do you think lots of companies still have concerns about free software? I actually think adoption is going at a fairly high rate, but what people sometimes miss is that there’s just a huge inertia in switching operating systems, so Microsoft Windows has a big advantage in just the historical installed base. And on bigger servers, people are still running older Unix installations.

So these things don’t take a year or two. They take a decade or two. We’ve come a long way. Is there a long way to go? Sure. There are technical issues, support infrastructure and just people’s perceptions that just take a long time to sort out.

Microsoft has recently claimed that free software and some e-mail programs violate 235 of its patents. But Microsoft also said it won’t sue for now. Is this the start of a new legal nightmare? I personally think it’s mainly another shot in the FUD [fear, uncertainty and doubt] war. Microsoft has a really hard time competing on technical merit, and they traditionally have instead tried to compete on price, but that obviously doesn’t work either, not against open source. So they’ll continue to bundle packages and live off the inertia of the marketplace, but they want to feed that inertia with FUD.

Do you think you and the open-source software community are prepared for this battle? I don’t actually see it as a battle. I do my thing because I think it’s interesting and worth doing, not because of any anti-Microsoft issues. I’ve never had a strong antipathy against them. Microsoft simply isn’t interesting to me. And the whole open-source thing is not an anti-Microsoft movement, either. Open source is a model for how to do things, and I happen to believe that it’s just a much better way to do things.

Microsoft and Novell last year announced a partnership for the interoperability of Windows and SUSE Linux. Some analysts are saying this kind of agreement is positive for consumers and can help popularize Linux. Do you agree? I don’t know. I don’t actually think the Novell-Microsoft agreement matters all that much in the end, but I think it would be healthier for everybody if there wasn’t the kind of rabid hatred on both sides. I’d rather just worry about the technology. The market will take care of itself.

— Interview by **Peter Moon**,
Computerworld Brazil;
Dossier by **Todd R. Weiss**

OPINION

Virginia Robbins

Practice Makes Perfect, Even in IT

WE ALL KNOW that the best athletes maintain their skills with rigorous practice. Could the same be said of the best IT professionals?

Golfer Tiger Woods hits thousands of balls. The great San Francisco 49ers receiver Jerry Rice practiced catching pass after pass. We all expect that of athletes. But it was surprising to hear Pat Kuleto, whom *Time* magazine named a culinary arts innovator in restaurant design in 2000, say on an episode of PBS's *Check, Please! Bay Area* that he excels in his field because he practices. Really? How do you practice designing restaurants? Kuleto didn't explain, but it got me thinking about the role of practice in our profession.

What does it mean to practice? You have to first identify the key actions for success and then take every opportunity to improve them until you obtain the highest possible results.

But practicing is dull and takes time. And it means acknowledging that some of the basic things you do could be improved. So why bother? If for no other reason, because practice reduces stress in a number of ways.

First, when you practice, you make a commitment to become really good at what you do. If you spend a lot of time worrying that you're in the wrong job, committing to better results in your current job may be enough to reduce stress significantly. And if it turns out that you're not in the right job, more people will be willing to help you find a new one if you've been able to demonstrate improvement.

Once you've made a commitment to practice, analyze your duties and determine which ones generate most of your results. That analysis helps you delegate. Just keep asking yourself, Who is the best person to do this? If it's not you, hand it off. Your stress level will fall accordingly.

If people like Tiger Woods attribute their success to practice, it's worth trying.

Second, practicing what you do means thinking about what you're doing, and that can keep you out of what I call the transaction ghetto. That's where I end up when I let stress rob me of the care that every task deserves.

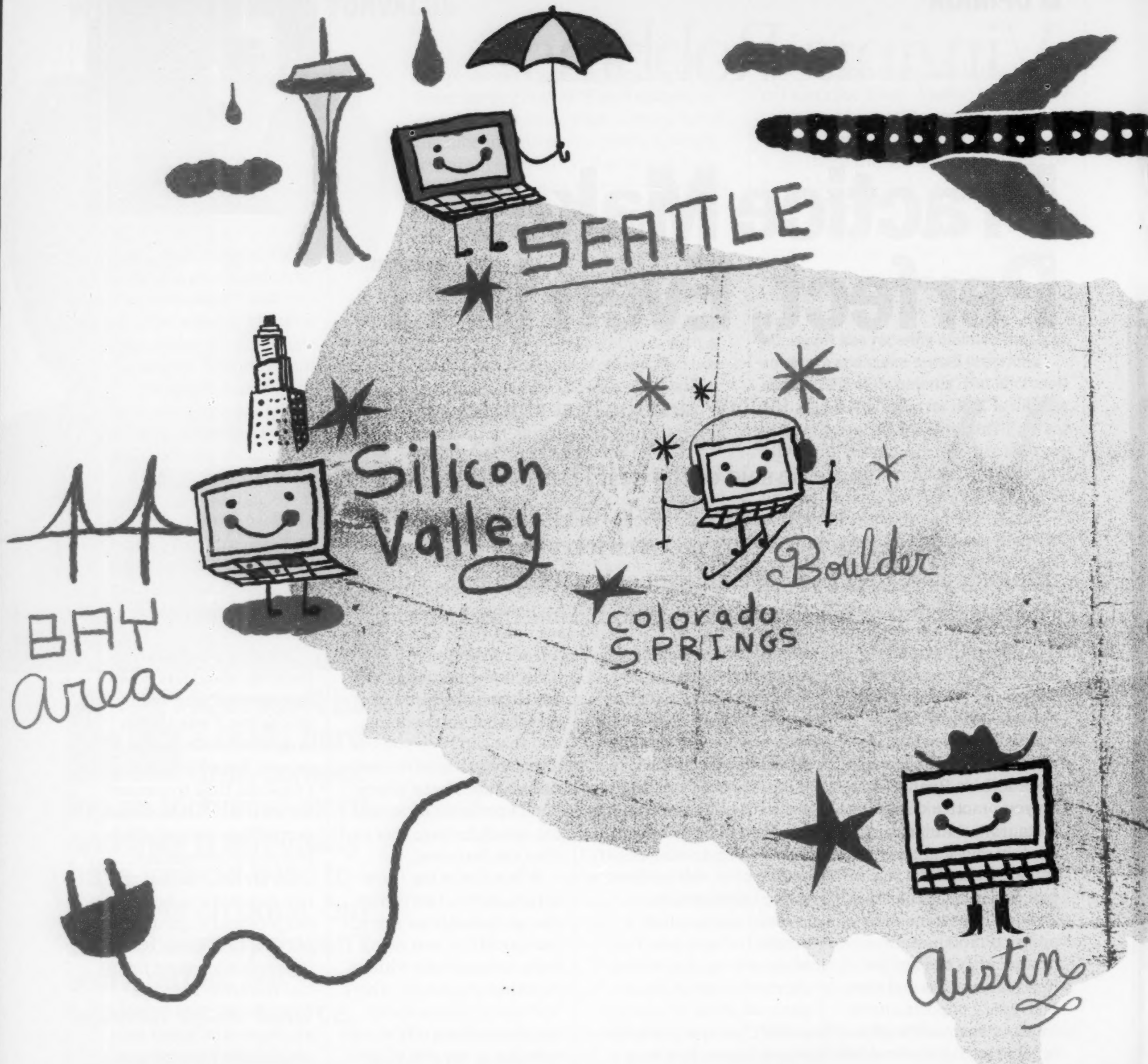
When I'm in the transaction ghetto, I do things like go through my e-mails too quickly — and then I reply to questions without thinking about how others will react. You can hear the shouts from offices and cubicles as my e-mail gets forwarded through the company. Suddenly, I've created a crisis that needs everyone's attention and pulls me away from more-important things. Just a little thought can help you avoid unnecessary stress.

Third, practice lets you question the things you've done so often that they've become habits. By paying close attention to what I was doing even when I didn't seem to be doing anything, I was able to notice that I tended to walk around the office with my shoulders tensed up, practically around my ears. Just looking at me was enough to stress out some of my customers, and their stress made me feel even more stressed. What's more, my physical reaction to stress was creating all sorts of problems for my back and neck, and those problems generated pain, which generated more stress.

It took a lot of effort to force my shoulders down and start smiling, but by practicing, I was able to project a calmer image of myself. Eventually, when I took the time to remove my own stress manifestations, there was actually less stress around me.

I truly believe that practice can make us better at our jobs and open up new possibilities for us, including promotions and financial rewards. The data might be skewed — after all, those who aren't successful don't get the press that successful people do. But if people like Pat Kuleto, Tiger Woods and Jerry Rice attribute their success to practice, then I think it's worth trying. ■

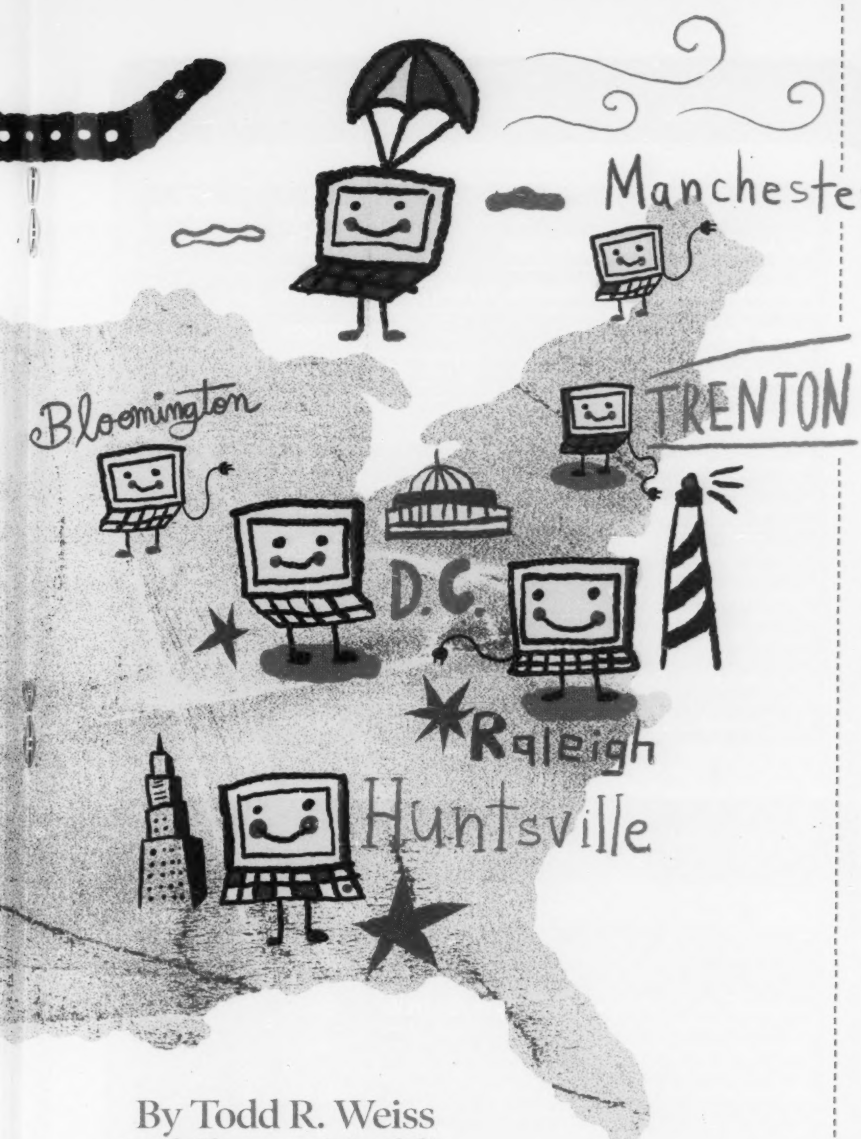
Virginia Robbins *is a former CIO who is currently the chief administrative officer responsible for bank operations at the California Bank of Commerce. You can contact her at vrobbins@sbcglobal.net.*



SEATTLE
Silicon Valley
BAY area
Boulder
Colorado SPRINGS
Austin

Where the J

America's **tech hot spots** m



NATE WILLIAMS

By Todd R. Weiss
and Sharon Machlis

Jobs Are
may surprise you.

THE HIGHEST concentration of IT professionals in the U.S. is — you guessed it — in Silicon Valley. But naming the No. 2 spot isn't as easy.

The runner-up isn't a well-known tech center like Boston or Seattle-Redmond; it's the Washington, D.C., metro area.

"It kind of belies some of the perceptions of where the hiring is," says John Challenger, president of Chicago-based outplacement firm Challenger, Gray & Christmas Inc. "[Many people typically] think that most people in IT work in Silicon Valley, and they might add in Washington state, Seattle and maybe Austin."

Data from 2006 from the U.S. Census Bureau's annual American Community Survey (ACS), released just last month, reveals how "techie" a region's overall workforce is, based on the number of self-reported computer professionals. Some of the results turn stereotypes upside down.

COMPUTERWORLD.COM
MORE ONLINE
See an interactive map of tech hots spots at **computerworld.com/07/census**

Roughly 6% of the D.C. metro area workforce is made up of "computer specialists," compared with 8.3% in California's San Jose-Sunnyvale-Santa Clara region. The third-highest concentration is in Raleigh-Cary, N.C., where IT workers represent 5.3% of the workforce, followed closely by Boulder, Colo., and Huntsville, Ala., each with 5.2%.

UNCLE SAM WANTS YOU!

Not everyone is surprised by the latest numbers. "We always thought we belong in the same breath as the Silicon Valley folks," says Richard Doud, president of the Arlington (Va.) Chamber of Commerce. "There's a lot of IT jobs in the area."

That's largely attributable to the heavy concentration of government agencies and contractors. In addition, companies tend to congregate near government facilities, educational institutions and other businesses. "Companies like to group," Doud says. "It has to do with the availability of workers."

Despite the high percentage of tech professionals in the area, hiring can be a challenge. "There are a lot of IT people around here," says Jay Atkinson, an Alexandria, Va.-based business consultant who has done IT hiring as a chief financial officer at three companies. But there's also tremendous demand for them, he adds, so "they can be hard to find."

The Census Bureau data also shows that IT worker pay is higher where the percentage of techies in the workforce is higher, but whether that's attributable to demand or the cost of living or both is unclear.

The average annual salary for computer and information systems managers in Silicon Valley as of May 2006 was $139,460, according to the Bureau of Labor Statistics. In metro D.C., it was $122,950. Around Raleigh, N.C., it was $102,880.

The New York metropolitan area dwarfs both Silicon Valley and D.C. for overall number of IT workers, but the figure reflects the size of that region's workforce as a whole. New York, along with northern New Jersey and Long Island, is home to about 221,020 IT workers, but they make up only about 2.5% of the area's total workforce. The Washington metro area has the second-highest number of IT workers overall, at 170,429. Metropolitan Chicago is third, with 116,374 IT workers, but they make up only 2.6% of that area's total workforce.

TOP-TIER TRAINING

Several top-tier colleges in the Raleigh area contribute a steady stream of new IT professionals to that region's workforce, according to Ken Atkins, an executive at the Greater Raleigh Chamber of Commerce. He also cites "quality of life, the educational system from K-12 through the universities, and the number of good jobs."

The relative affordability of homes in the area, especially in comparison with housing prices in Silicon Valley and metro D.C., may also play a part, as do the number of IT-hungry companies — including Fidelity Investments, Network Appliance Inc. and Credit Suisse Group — that have set up shop there.

Bloomington, Ill. — No. 6 on

Continued on page 28

AMERICA'S TECHIEST METRO AREAS

METRO AREA	IT WORKERS	% OF WORKFORCE
San Jose-Sunnyvale-Santa Clara, Calif.	71,426	8.3%
Washington, D.C./Arlington-Alexandria, Va./Md./W.Va.	170,429	6.1%
Raleigh-Cary, N.C.	27,020	5.3%
Boulder, Colo.	7,925	5.2%
Huntsville, Ala.	9,390	5.2%
Bloomington-Normal, Ill.	4,216	5%
Trenton-Ewing, N.J.	8,519	4.8%
Austin-Round Rock, Texas	37,206	4.8%
Manchester-Nashua, N.H.	9,814	4.5%
Seattle-Tacoma-Bellevue, Wash.	75,557	4.5%
Colorado Springs, Colo.	12,511	4.3%
San Francisco-Oakland-Fremont, Calif.	89,989	4.3%

SOURCE: U.S. CENSUS BUREAU, 2006 AMERICAN COMMUNITY SURVEY

TOP METRO AREAS FOR IT WOMEN

METRO AREA	FEMALE IT WORKERS	% OF WOMEN IN IT WORKFORCE
Washington, D.C./Arlington-Alexandria, Va./Md./W.Va.	55,126	32.3%
Detroit-Warren-Livonia, Mich.	14,999	31.5%
Baltimore-Towson, Md.	13,687	28.6%
Philadelphia/Camden, N.J./Wilmington, Del./Md.	22,058	28.2%
Atlanta-Sandy Springs-Marietta, Ga.	23,670	28.2%
Houston-Sugar Land-Baytown, Texas	14,973	28.2%
Chicago-Naperville-Joliet, Ill./Ind./Wis.	32,424	27.9%
Boston-Cambridge-Quincy, Mass./N.H.	22,810	26.8%
Dallas-Fort Worth-Arlington, Texas	26,060	26.7%
Minneapolis-St. Paul-Bloomington, Minn./Wis.	16,600	26.7%
San Jose-Sunnyvale-Santa Clara, Calif.	15,893	22.3%

SOURCE: U.S. CENSUS BUREAU, 2006 AMERICAN COMMUNITY SURVEY; DATA FROM METRO AREAS WITH THE LARGEST REPORTED NUMBER OF TOTAL IT WORKERS

_INFRASTRUCTURE LOG

_DAY 75: These cables are everywhere!! Connecting underutilized servers to more underutilized servers. Our energy usage is out of control!!

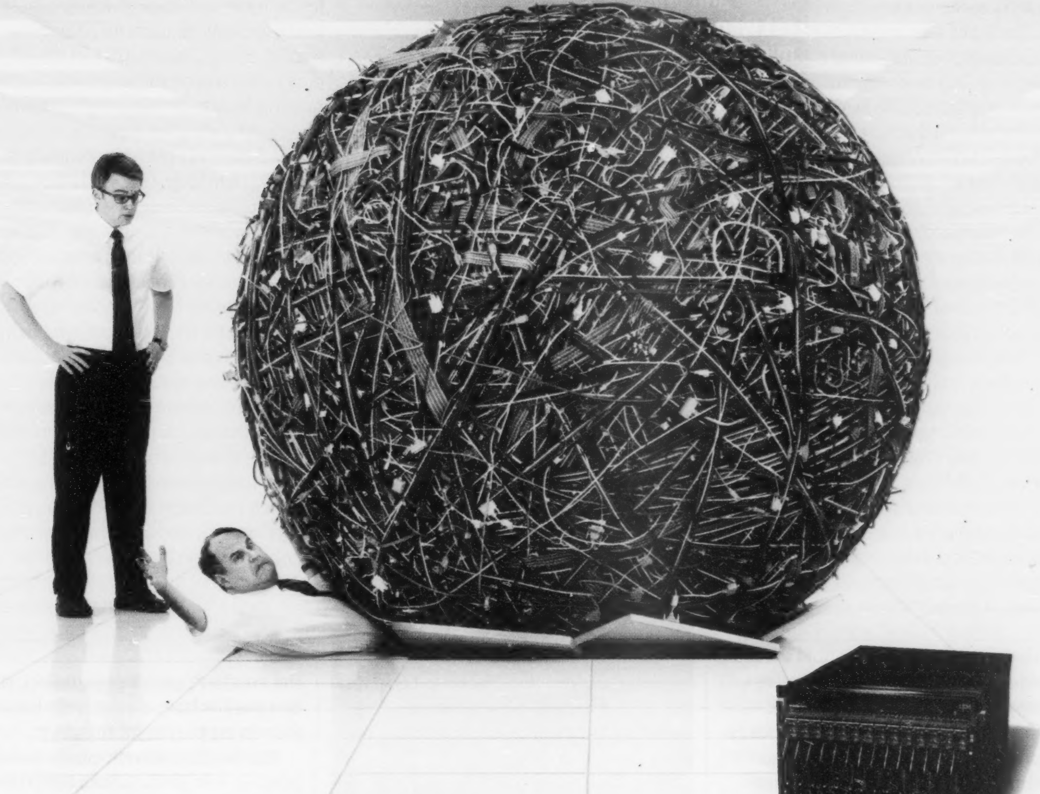
_DAY 77: I found a way out of this mess: the super-efficient IBM BladeCenter.® It helps us manage power and cooling usage with intelligent Cool Blue™ technology. And with its new Quad-core Intel® Xeon® processor, we won't have to sacrifice performance for efficiency. So out with cables, in with blades.

_DAY 79: Gil's stuck under the ball. Tried calling his wife. Turns out the photo of his family came with the frame.

intel

Xeon® inside™

Quad-core. Unmatched.



IBM®

IBM.COM/**OUTWITHCABLES**

IBM, the IBM logo, Cool Blue and BladeCenter are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. Intel, Intel Inside, the Intel Inside logo and Intel Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and/or other countries. Other company, product and service names may be trademarks or service marks of others. ©2007 IBM Corporation. All rights reserved.

GO EAST, YOUNG WOMAN

IF YOU'RE LOOKING FOR WOMEN IN IT, look east. The highest proportion of women in the IT workforce won't be found in Silicon Valley; it's in the Washington, D.C., metro area, according to the annual American Community Survey (ACS), released last month by the U.S. Census Bureau. Moreover, the top five metro areas for IT women are all east of the Mississippi.

The D.C. metro area, which includes Arlington and Alexandria, Va., employs 55,126 women IT workers, and they make up about 32.3% of the total IT workforce there.

The Detroit area, which includes Warren and Livonia, Mich., ranks second, with an IT workforce that's 31.5% female, followed by the Baltimore-Towson, Md., metro area, where women account for 28.6% of the IT workforce.

In fourth place is the Philadelphia area, which also includes Camden, N.J., and Wilmington, Del. There, women make up 28.2% of an IT workforce that totaled 78,132 people in 2006.

Oddly enough, among 18 large U.S. metropolitan areas, California's San Jose-Sunnyvale-Santa Clara region ranks close to the bottom in terms of women in the tech workforce, at 22.3%. Only Seattle-Tacoma-Bellevue was lower, at 20.8%, according to the census data.

"If you go to a lot of the bars here, you'll see that [statistic] play out," says Steve Van Dorn, president and general manager of the Santa Clara Chamber of Commerce and Convention-Visitors Bureau. "There's a lot more men to women. That's what my younger friends tell me. I can't think off the top of my head what would cause that."

David Leighton, president of Women in Technology International in Sherman Oaks, Calif., says he is surprised by the lower percentages of women in IT in tech-centric areas such as San Francisco, Silicon Valley and Seattle, but he adds that the figures could be misleading. "When you look at some of the numbers on women-owned businesses, so many women in the technology industry leave to start their own businesses," he says. They "fall off the radar as an IT person" and are classified as business owners rather than IT professionals, he explains. "That could definitely impact a lot of the numbers" in California.

Another trend, Leighton says, is that many more women are moving into executive positions rather than hands-on IT roles, and that changes their job categorizations, even if they remain in IT.

> **"The best and brightest women may be migrating out of the West Coast to other places where their skills are in high demand.**
>
> JOHN CHALLENGER,
> PRESIDENT, CHALLENGER, GRAY & CHRISTMAS INC.

The numbers surprise John Challenger. The expectation is that Silicon Valley would be "open to diversity and getting away from the biases of the past," says the president of outplacement firm Challenger, Gray & Christmas. "But it's not showing up."

The West Coast's technology culture could be a factor, he speculates. "The West Coast scene is ultracompetitive and more entrepreneurial in nature, since it represents the innovative leading edge in the development of new technology," Challenger notes. "And while we are not saying that women can't compete, perhaps they are simply choosing not to."

Instead, he says, "the best and brightest women may be migrating out of the West Coast to other places where their skills are in high demand and where the culture is more accepting."

Page Moon, CEO of IT outsourcing business Focus Data Solutions Inc. in Alexandria, Va., says the amount of government jobs in the Washington metro area is a key reason for the higher percentage of women in the IT workforce there. "Because the government employs so many people in this area, the industries that support the government have to have a lot more technology people, and that's going to drive hiring," he says.

Ervin Suarez, vice president of consulting services at San Diego-based IT support and services company iTech, which also has offices in Washington and elsewhere, says he has a hard time understanding how there could be so many female IT workers in the D.C. metro area, because he's had little luck bringing them into his 65-employee company. "I have about 12 women on our team," Suarez says. "I've been having trouble finding more."

The company uses a staffing agency to help locate workers and scours employment Web sites such as Monster.com, he says. "We just don't come across too many females for some reason," Suarez says. "If the percentage [of women IT workers] is high, then I need to know where they are so I can find them."

– TODD R. WEISS;
DATA ANALYSIS BY SHARON MACHLIS

Continued from page 26

the list of the techiest metro areas — which has a relatively small workforce compared with the other areas, has attracted IT workers in part because it has been named in several lists of "best" and "most affordable" places to live, says Mike Malone, executive director of the McLean County Chamber of Commerce.

"We've been blessed in the area with a good transportation network and a low cost of living," he says. "With technology, you don't have to be in any particular area to be successful. You have to have communication lines and data lines to do your work."

Two hours south of Chicago and two hours north of St. Louis, McLean County is the fastest-growing county in Illinois, Malone says. Tech-heavy companies like State Farm Mutual Automobile Insurance Co. and Country Insurance & Financial Services employ many IT workers there, says Tom Moy, systems director at State Farm. Given the smaller overall population, those companies have a relatively larger effect on employment numbers.

Huntsville's fourth-place standing is attributable to the area's longtime connection to the aerospace and defense industries, according to John Southerland, spokesman for the local chamber of commerce. "It's known as a high-tech area, and that dates back to the 1950s. It's been a magnet for high-tech workers ever since," he says. "Obviously, the space program was a catalyst." ■

Tribal Link

The Navajo Nation's 'Internet to the Hogan' project will connect government agencies serving the tribal nation's 250,000 citizens through voice, video and data. By Mary K. Pratt

WHEN it comes to telecommunications, the Navajo Nation is years behind. Many government agencies, school systems and individual residents lack computers and Internet connections; in fact, many residents still don't have telephones.

The consequences of this digital divide are staggering. Citizens often drive hours for health care and other essential services, or go without. Government workers use older telecommunications services that aren't integrated. And entrepreneurs and economic development plans are hindered by outdated technologies.

"The need for an infrastructure build-out is important, because without connectivity, you can't do anything," says Tom Davis, dean of instruction at Navajo Technical College (NTC) in Crownpoint, N.M.

That's changing, though, with the Navajo Nation's "Internet to the Hogan" initiative. (The term *Hogan* comes from the name for traditional Navajo dwellings.) This sweeping program is the Navajo government's drive to bring 21st century technology to its people.

"We want to use technology to create a paradigm shift to help our people and better our lives," says Harold Skow, director of IT for the Navajo Nation, whose central government is based in Window Rock, Ariz.

The project's significance earned it a place in the *Computerworld* Honors program as the 2007 winner in the government category.

BEN FRANTZDALE

[AT-A-GLANCE]

Navajo Nation

www.navajo.org

Window Rock, Ariz.

PROJECT: The Internet to the Hogan initiative aims to bring wireless connectivity to the 250,000 residents living on the 27,000 square miles of tribal land.

PROJECT CHAMPIONS: Harold Skow, director of IT for the Navajo Nation; Leonard Tsosie, Navajo Nation Council delegate and former New Mexico state senator; Jason Arviso, director of IT at Navajo Technical College; and Todd Romero, NSF director at Navajo Technical College.

SIZE OF IT GROUP: 22 workers at the Navajo Nation IT department, but the Internet to the Hogan project relies on numerous IT workers and project advocates from more than 20 organizations.

"Internet to the Hogan is a groundbreaking project that we hope will have a ripple effect on communities throughout the state," says Benny Shendo Jr., cabinet secretary of the New Mexico Indian Affairs Department. "Indian people living on rural reservations will be the first to benefit from the project. But, looking long term, once the technology has been perfected, it will be used to bridge the technological gap for all of the state's rural communities. Under the leadership of Gov. Bill Richardson, it's an investment I believe will continue to pay dividends for many years to come."

A PROJECT OF STAGGERING SIZE

To fully appreciate the critical nature and considerable size of this undertaking, it's important to understand the Navajo Nation's starting point. This sovereign tribal nation has more than 250,000 citizens living across 27,000 square miles in New Mexico, Arizona and Utah. Government entities, including 110 community-based chapter houses, had varying levels of telecommunication services. Some, for example, had dial-up Internet service, while others had no connections at all.

The Navajo Nation Department of Information Technology (DIT) set out to change that. It wanted to build an integrated network infrastructure that would enable any government entity — be it an agency, school or library — to communicate with any other through voice, video and data. The DIT also wanted to connect each chapter house so citizens could access government services close to home rather than having to drive up to six hours to central government offices.

"When I came here, we were so far behind. None of what I was doing [in the private sector] was available here," says Skow, who took the director's position four years ago, after working in private industry for 13 years.

Skow started with a three-year plan to start building the infrastructure backbone needed for future growth. The DIT's early successes attracted the attention of other entities, and the groups came together in late 2004 to develop the Internet to the Hogan initiative. "I was working with my legislative efforts, and I went to visit some people, and they had similar goals, and that is to do a wireless project across the Navajo Nation," says Leonard Tsosie, a former New Mexico state senator who's now a Navajo Nation Council delegate.

Tsosie says project advocates as well as the citizens themselves recognize the need for the technology upgrade if they want to improve education, gain access to health care, spur economic development and simply connect to the larger online world.

The technical accomplishments to date are impressive.

By the end of this month, NTC is scheduled to have completed the first phase of a project that will bring a major wireless pipe from Albuquerque to its rural campus in northwest New Mexico using OC3 (155 megabit) speeds; LambdaRail, a nationwide network infrastructure owned and controlled by the U.S. research community; and Internet2 network capabilities. Internet2 is a research consortium led by more than 200 U.S. universities working in partnership with industry and government organizations to develop and deploy advanced network applications and technologies.

The plan is to use backhaul and Canopy wireless technology from Motorola Inc. along with products from Harris Corp., a communications and IT company headquartered in Melbourne, Fla., to bring broadband connectivity from NTC to 31 New Mexico-based chapter houses, which serve as centers for social, cultural and political organization within the Navajo Nation.

Looking further ahead, the goal is to extend connectivity farther into Navajo land in Arizona and to schools, medical clinics, hospitals, police departments, firehouses and homes within a 15-to-30-mile radius of each chapter house using the Canopy technology, Skow says. For example, two OC3 lines are already providing connectivity to chapter houses and agencies in that region.

As part of the Internet to the Hogan initiative, NTC is also developing supercomputing capabilities by building an IBM blade cluster on its campus with wireless connectivity and LittleFe portable computational cluster technology, allowing clusters to be located at chapter houses and schools.

"We're working hard to catch up with the 21st century technology, and once we develop this backbone, the opportunities will be endless," says NTC President Elmer Guy.

Such IT advancements mean chapter houses, Navajo workers and individuals will have access to high-speed Internet, IP-based phone service and related services, such as interactive videoconferencing. In fact, Skow says some of that is already in place, including videoconferencing capabilities for the Navajo Nation's social services agency. And there are plans for projects that create more opportunities for access, such as initiatives to supply homes — even those without electricity — with laptops and extra batteries.

A LONG ROAD AHEAD

The interested parties, which include the DIT and advocates from more than two-dozen other organizations, including area schools and colleges, had common goals. However, they saw — and still face — significant challenges.

For instance, since land in the region falls under various jurisdictions, planning often involves the New Mexico, Utah and Arizona state governments as well as federal agencies, Tsosie says.

Finding money for the project's sizable price tag remains a challenge, too, Tsosie says. (Skow says that about $45 million has been spent to date.)

Tsosie says the various stakeholders are volunteering time and are willing to come together for regular meetings where they can develop their "shared vision" into actionable plans.

As for funding, money has come from state and tribal governments, schools and colleges, the Universal Service Fund and grants. For example, the Bill & Melinda Gates Foundation paid for chapter house computers.

As the Internet to the Hogan initiative continues to move toward its goal of connecting more and more areas of the Navajo Nation to the modern infrastructure and all the services it brings, Skow, Tsosie and others say they will continue to face organizational and financial challenges.

But Skow says he is confident that the importance of the mission will lead to its success. "This project has one common goal: to serve our people," he says. "We can't afford to fail." ■

Pratt *is a* Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

Benefits Stretch Beyond Technology

NAVAJO TEENAGERS have a higher rate of suicide than the U.S. average, yet until a year ago, they had limited access to the health care services that could save them.

Now, through telehealth networks enabled by new high-speed Internet connections, Navajo teens can meet with adolescent psychiatrists for counseling via two-way interactive video.

"The idea of the Internet to the Hogan was to close the gaps so we can provide services through technology," says Dr. Dale Alverson, medical director for the Center for Telehealth and Cybermedicine Research at the University of New Mexico School of Medicine.

The benefits of the Internet to the Hogan project are sweeping. Harold Skow, director of IT for the Navajo Nation, and other project champions say that, in addition to telemedicine, the ongoing build-out of the technology infrastructure creates access to government services at local chapter houses; distance learning via teleconferencing; after-hours access to the Internet for school children; and access to information in the Navajo language.

Project advocates also point out that the technology will allow entrepreneurs to develop Web-enabled businesses or create jobs, such as call center positions.

Tom Davis, dean of instruction at Navajo Technical College, already sees the Internet to the Hogan initiative spurring job opportunities. Navajos working on the project are developing technical expertise, he explains, and they will have work supporting the technology in the future.

"We can use the technology to bring real value to the community," Alverson says.

— MARY K. PRATT

BIGFIX®
Microsoft
symantec
McAfee
Altiris
LANDesk

THE BIGFIX 2008s ARE IN

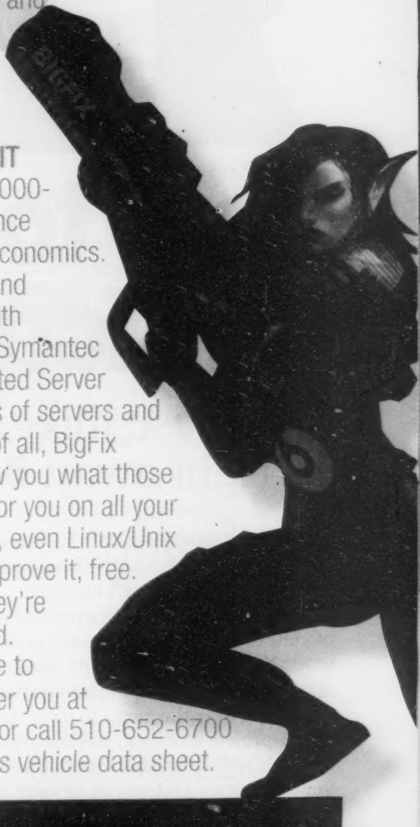
BIGFIX Discovery 7.0 specifications

Engine	[illegible]
Power	[illegible]
Torque	[illegible]
Displacement	Microsoft, McAfee, Symantec, LANDesk
Compression	[illegible]
Transmission	[illegible]
Acceleration	[illegible]
Braking failsafes	[illegible]
Viewing Radius	[illegible]
Height/Width	[illegible]
Safety	[illegible] attacks, [illegible] & rogue devices
Test Data Verified in Battle	[illegible]

The BIGFIX Discovery 7.0 platform shown above is equipped with a black leather interior and combat ace designations for wholesale destruction of Altiris, LANDesk, McAfee, Microsoft, and Symantec.

We are pleased to announce BIGFIX Discovery 7.0, available for immediate delivery. Now you can conquer your IT time and space with real-time visibility and control across hundreds of thousands of servers and endpoints in minutes! Yes minutes. With **The Ultimate IT Machine's** 1-server-to-200,000-endpoint ratio, you'll experience unmatched performance & economics. Not just "Big." Intergalactic! And contrary to what you need with LANDesk/Microsoft/McAfee/Symantec et al, the new BigFix Distributed Server Architecture eliminates fleets of servers and armies of consultants. Best of all, BigFix Discovery 7.0 can even show you what those guys are (NOT) really doing for you on all your computers—Windows, Vista, even Linux/Unix and Mac systems. And we'll prove it, free. At your site. Which is why they're running scared. Really scared.

Schedule a free test drive to show how fast we hyperpower you at www.bigfix.com/discovery7, or call 510-652-6700 x116. We'll also send you this vehicle data sheet.



BIGFIX®

Never before have so few done so much, so fast, for so many.

©2007 BIGFIX. BIGFIX and its logo are registered trademarks of BIGFIX, Inc. All other trademarks are acknowledged. Illustrations by Daryl Mandryk.

TRBA

ROBIN JAREAUX/GETTY IMAGES

How to Manage An Acquisition

Ask these integration questions — right away. **By Tom L. Barnett**

AN UNANNOUNCED "all-hands" meeting is hastily convened first thing on a Thursday morning. The vice president of your division announces the great news: Your company has just acquired another business, and the integration will occur over the next 120 days. As the IT project manager, you realize that this will inevitably restructure your priorities. Unless you or your company has done this before, you may have no idea where to start. And by the way, the clock is ticking.

I've been in this situation before, and whenever it happens, there are a few key things I need to know right away: Where are we now? Where do we want to be? And what is the gap between them?

Start With What You Can Touch

First, there is the tangible: people and hardware. They are the real-world things that we have to deal with. I will usually get a senior architect and my lead network engineer to join me in a visit to the new site. I want to get an inventory of what types of technology the new group has and what we have to work with. I also need to understand the context of what this new business does. I always start at the top and work my way down any inventory list or employee roster I may be examining. For example:

HARDWARE: What equipment do they have? I check out everything from the basic infrastructure (servers, switches, firewalls) to PCs and all of the support contracts on the equipment.

PEOPLE: Who are the IT people, and what are their responsibilities? You could start by checking with Human Resources, but they probably can't tell you what IT people *really* do. I find it more useful to get involved and interview each of the IT staff members myself. It gives me an idea of what they do and are capable of. It also gives me a chance to get to know them as people.

What Do They Do And How Do They Do It?

Both of these tangible assets — people and hardware — need to follow instructions to perform their work. People follow procedures, and hardware follows software instructions. I need to quickly compile lists for both.

SOFTWARE: What services or business functions does IT perform for the customer? Does it run financial, payroll, scheduling, sales and e-mail applications? And what software does it use?

PROCEDURES: What procedures does IT perform to run the operation and support the business? Does it maintain the infrastructure, run the help desk, handle disaster recovery planning or distribute support guides?

The answers to these questions will give me a good idea of how mature the IT environment is as well as an inventory of the applications that I am dealing with. They are a good starting point because I need to move employees' e-mail accounts, track down software maintenance costs and start reviewing contracts to see what modifications need to be made.

Where Do They Do It?

This is the one that usually ends up causing the most problems down the road if it isn't dealt with upfront. As network links are broken between our new acquisition and the other entities it used to conduct business with, other things begin to break as well. So to keep operations running, it's crucial to first document all of the data touch

And Don't Forget . . .

- **DON'T assume that the existing IT staff is eager to help.**
- **DON'T assume that the existing IT staffers know everything about their environment. (They usually inherited it and just kept it working.)**
- **DON'T impulsively lock security down; applications *will* start breaking if you do.**
- **DON'T implement new technologies yet; complete the transition and secure current functionality first.**
- **DON'T estimate network traffic volumes conservatively (in the company and out); add a cushion.**
- **DON'T forget to identify external entities the business needs to connect with.**
- **DON'T forget to plan for redundant hardware if you're relocating servers; things always break in transit.**
- **DON'T assume that everything will be smooth.**

– TOM L. BARNETT

points, interfaces, firewalls, routes and security. For example:

NETWORK: What locations does the acquisition's IT service have to communicate with? How does it communicate with them? From what locations does it send and receive data? An experienced network engineer is invaluable to deciphering how all of the systems communicate.

As I mentioned, this is a particularly good time to start documenting or reviewing security. Your server administrator and your network engineer can look at firewalls during business hours to see how things are being accessed.

If the acquired company has not deliberately implemented a formal security approach, then its security policies have probably been haphazardly patched together over the years without rhyme or reason (or documentation). Start sorting things out by looking at groups of users and what levels of security they require to perform their jobs. Don't be surprised if nearly everyone is listed as an administrator.

Putting It All Together

People and machines are very different, and like countries in different parts of the world, they need a common currency with which they can interact. The currency in the IT world is data. So you need to understand how they use that currency.

DATA: Find and document where all of the data resides. Who (and what) uses it? How often is it backed up? How is it restored in the event of a disaster? Who has access to it?

These six core elements provide a road map that helps me to quickly navigate what I need to know when I look at a new business acquisition for the first time. They give me the line of questioning I need in order to quickly determine what I'm dealing with.

By using this map to drive my analysis and investigation, I get a quick feel for the new acquisition and have a better chance of not missing anything important. I can bridge the gaps my team identifies and define the work we need to do. I am left in a much better position to estimate the resources needed to accomplish the goal because I am dealing with a few more facts than guesses. I can manage risk and increase the chances of success. The new business partners are brought on board quickly and with minimal disruption. All is right with the world — until the next surprise all-hands meeting. ■

Barnett *is a program director at a large IT services company where he focuses on IT program management for clients. Contact him at tom.barnett@earthlink.net.*

intel
Leap ahead™

THE BENEFITS OF QUAD-CORE. NOW IN THE COMPLETE LINE OF INTEL® XEON® PROCESSORS.

■ SECURITY MANAGER'S JOURNAL | MATHIAS THURMAN

Indian Audit Comes With a Silver Lining

An assessment of a **partner in India** turns up some problems, **but they're small,** and the **auditor's a keeper.**

Trouble Ticket

ISSUE: Audits of offshore partners are expensive but necessary.

ACTION PLAN: Give a tryout to an India-based auditor.

As my company increases its partnerships with offshore providers, the need for security audits rises. I've just conducted one whose results could have been better, but there's a silver lining.

For some time, our offshore partners have helped with source-code production and design documentation, as well as the manufacture of some of our products. More recently, the IT department has outsourced portions of our help desk, systems administration and application development functions.

One of my main concerns is that our partners comply with certain requirements before they can connect to our network. The policy mandates patches, virus protection, network segmentation and intellectual property protection. Such policies are necessary, but issuing them doesn't guarantee compliance. That's why audits are necessary.

I audit most of our partners once a year and high-risk partners every six months. It can get expensive, so I decided to follow my company's example this time and do some offshore outsourcing. I started with India.

I recently hired a consultant in the U.S. to perform a three-day assessment. He charged $8,000. A similar assignment in India using a local consultant would cost $1,000. The savings are obvious, even before travel costs are factored in. The question was whether the work would be of comparable quality.

I collected several résumés and conducted telephone interviews, finally settling on a consultant willing to travel all over India. He could perform not just the pending audit but those of our many Indian partners.

The assessment was of a partner with about 25 engineers doing design documentation. We haven't worked with this partner for very long and had yet to audit it. Since this partner is fairly small, an audit of its operations seemed like a low-risk way to evaluate the consultant's performance. He performed flawlessly, preparing a meaningful report.

■ A U.S. consultant recently charged me $8,000 for a three-day assignment. In India, the price is $1,000.

As for the partner, its failings were the result of a catch-22. The partner's only permissible access is via a VPN tunnel to our corporate offices so the engineers can communicate with the design documentation server. The engineers check out design documents, work on them and then check them in when they're done. According to our policy, the partner can't back-connect to its own company network.

Here's the catch: One of my requirements is that partners keep their systems current with antivirus updates and patches. The security audit discovered that the 25 desktops hadn't been patched in almost a year. That sounds bad, but we've seen this problem before. Windows Update and Symantec antivirus definition updates require Internet access.

Our partner lacked an in-house means of updating the workstations, so we had to loosen the firewall rules and create some static routes to allow the desktops to connect to the Internet, but only to update Windows and the antivirus definitions.

There were a couple of other small configuration items, but for the most part, this partner was clean. No backdoor access to its corporate network, no suspicious applications, no indications of a compromised network, no unauthorized wireless access points, no insecure firewall or router configurations, and no indication of thumb drives or external hard drives. In addition, nondisclosure agreements and sufficient physical security controls were in place.

Other than the lack of patches and antivirus updates, this partner got a clean bill of health, but more important, I've found a cost-effective way to conduct partner assessments in India. Now I have to work on finding the same in Russia! ■

COMPUTERWORLD.COM

JOIN IN
To join the discussions about security, go to **computerworld.com/blogs/security**.

This week's journal is written by a real security manager, **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

Maximize virtualization and server harmony with the complete line of Quad-Core Intel® Xeon® processors for mainstream servers. Visit intel.com/xeon

intel Xeon inside™

Intel VT requires a computer system with chipset, BIOS, virtual machine monitor and applications enabled for virtualization. Functionality, performance or technology will vary depending on configurations. Virtualization technology-enabled applications are currently in development. ©2007 Intel Corporation. Intel, the Intel logo, Intel. Leap ahead., Intel. Leap ahead. Logo, Intel Xeon and Xeon Inside are trademarks of Intel Corporation in the United States and other countries.

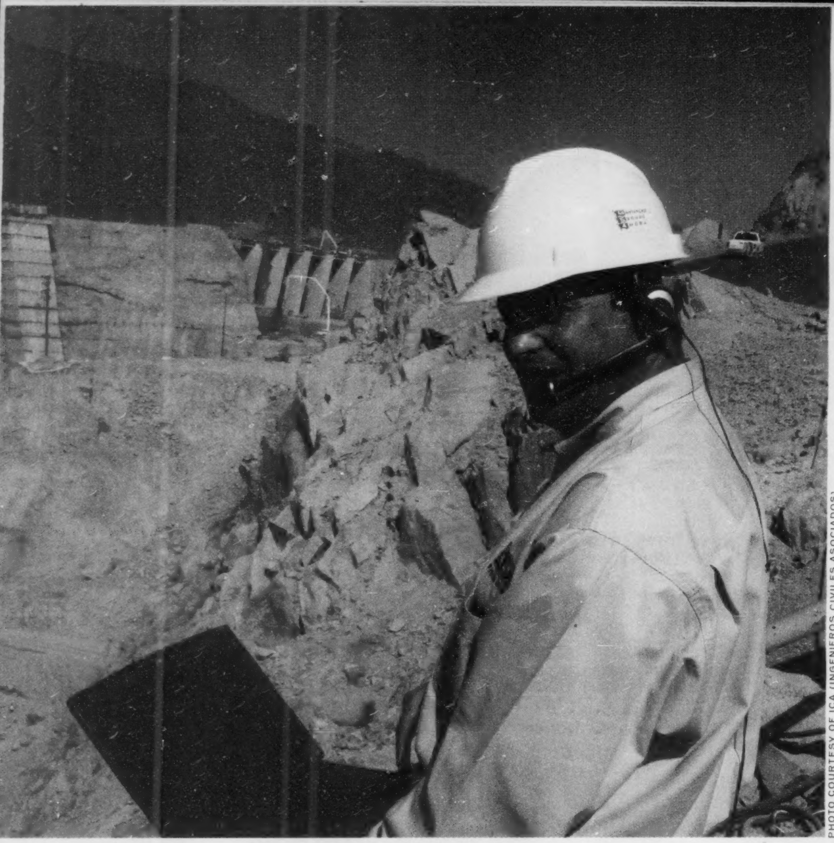


PHOTO COURTESY OF ICA (INGENIEROS CIVILES ASOCIADOS)

« Raul Orozco places an IP phone call using a laptop loaded with Cisco IP Communicator at the El Cajon Dam construction site in Mexico.

No Strings Attached

Wireless applications are boosting safety, efficiency and profits for businesses in the U.S. and around the world. **By Matt Hamblen**

WHAT DO a construction company in Mexico and a bank in Louisiana have in common? Wireless voice and data communications applications have helped each save time and effort, increase profits and even boost security. And neither project is one that normally comes to mind when you think "wireless."

ROUGH AND RUGGED IN THE MOUNTAINS OF MEXICO

Cutting-edge wireless voice and data communications were at the heart of an $850 million hydroelectric dam construction project finished early this year in a remote, mountainous region of Mexico.

Raul Orozco, IT and telecommunications director for Ingenieros Civiles Asociados (ICA), the principal contractor of the El Cajon Dam, says having reliable wireless communications during most of the four-year construction project not only saved money, but also kept workers safe.

With as many as 10,000 people working on the site in rough conditions in a wet climate for several years, "there were no fatalities, a world record for a dam project like this," Orozco says. "Some say that is because of the communications system." (He spoke during a presentation at the Cisco Networkers Conference last summer.)

Orozco relied on Cisco for nearly all of the data and voice technology, which he estimated cost more than $8 million. That included Wi-Fi and mesh wireless components, unified communications technology, voice-over-IP phones linked to e-mail and other online functions, and core routing and switching over some wired links.

Workers were able to share 3-D architectural models over the links, receive news and information, and handle payroll needs. Construction crews housed at the site were even able to watch World Cup soccer games and have telephones in their rooms.

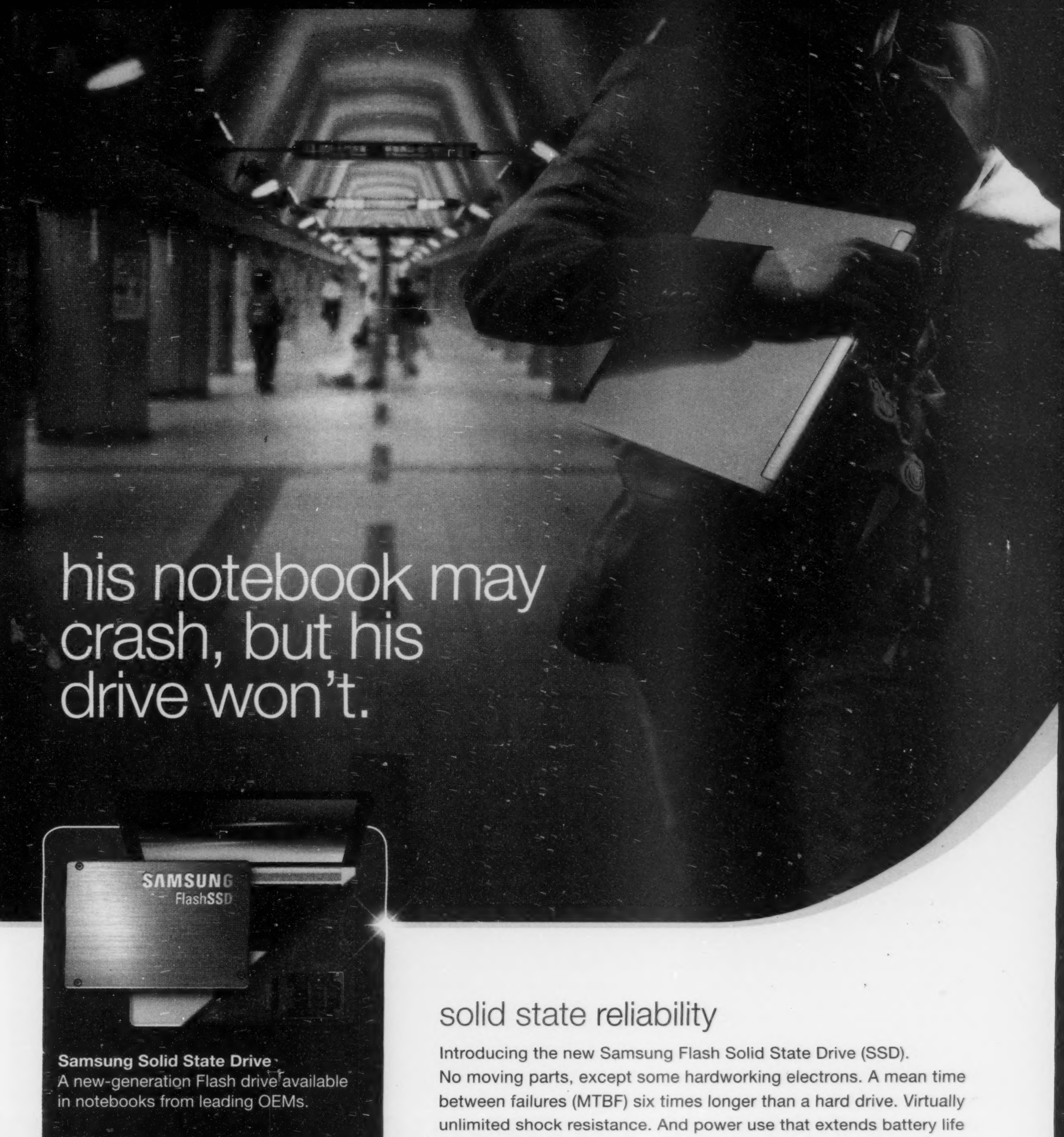
Orozco says the dam's location on the Santiago River, about 30 miles from Tepic City, presented a challenge for installing wireless access points, which had to send voice and data signals around mountains and below ground to 17 locations.

He was confident, however, that Cisco could meet the challenge, having worked with the company's engineers in previous construction jobs. "I knew they could do it, so I told them to just come do it," he says, laughing. "And they did."

When the dam was finished, nearly the entire IT and communications infrastructure was removed and stored in a warehouse. The 620-foot-high, rock-fill dam is now being used to turn turbines that generate power for the growing area near Tepic City, about 430 miles south of Mexico City.

There's no guarantee that wireless rollouts will save time and money and

Continued on page 36


his notebook may crash, but his drive won't.
SAMSUNG
FlashSSD

Samsung Solid State Drive
A new-generation Flash drive available in notebooks from leading OEMs.

endurance (MTBF[1])	> over 2 million hours
shock resistance	> 1500G / 0.5ms
read speed	> 100MB / sec
write speed	> 80MB / Sec
active power consumption	< 0.5W
system boot speed[2]	< 24 sec
operating temperature	-25C ~ 85C

[1] Mean Time between Failure
[2] HP NX9420, XP Pro, Core Duo Processor 2.0Ghz, 512MB RAM, ICH 7, i945 Chipset
© 2007 Samsung. All rights reserved.

solid state reliability

Introducing the new Samsung Flash Solid State Drive (SSD). No moving parts, except some hardworking electrons. A mean time between failures (MTBF) six times longer than a hard drive. Virtually unlimited shock resistance. And power use that extends battery life up to 20%. With a Samsung SSD inside your notebook, your data is always there when you need it.

www.samsungssd.com

SAMSUNG

CHALLENGES AND BENEFITS

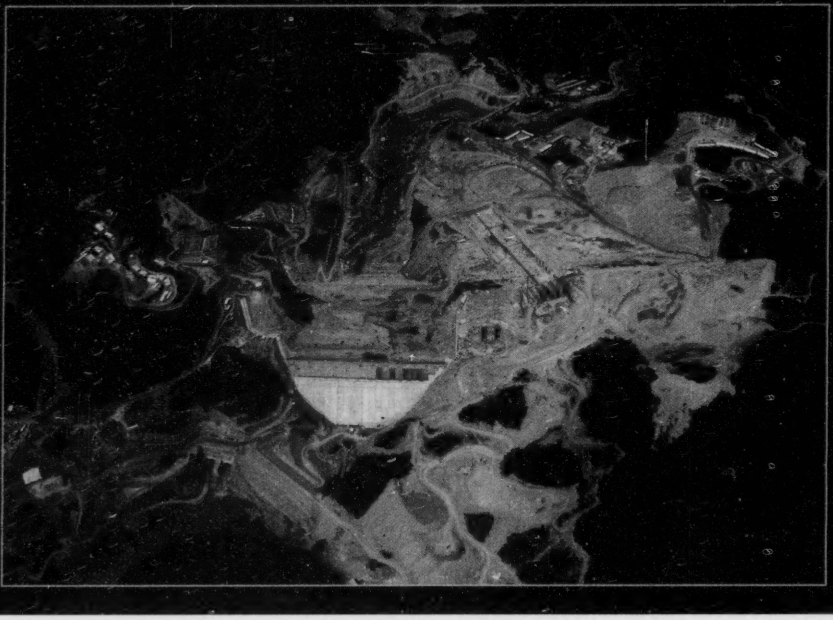
El Cajon Dam

CHALLENGES

- Remote location
- Extreme environment:
  - Mountains
  - Wet climate
  - 17 below-ground locations

BENEFITS

- Infrastructure cost savings:
  - 38 miles of fiber-optic cable not laid
  - 14 miles of copper cable not laid
- Minimal environmental impact
- Reusable components



■ The wireless network at El Cajon Dam facilitated communication and [illegible] for efficient distribution of components, including orders and concrete.

Continued from page 36

produce a high return on investment (ROI), says Jack Gold, a wireless analyst at J.Gold Associates LLC in Northboro, Mass. But he says IT managers can raise the probability of a good ROI with careful planning and pilot testing of the technology.

In fact, El Cajon became a laboratory for learning about wireless deployments for Orozco and Mexico City-based ICA. They learned, for example, that using wireless technology cut out the cost of building wired infrastructure. Orozco estimates that he avoided installing 38 miles of fiber-optic cable and 14 miles of copper cable. The wireless system also had less of an impact on the environment than a wired setup would have had, he says.

"We learned much for other projects," which currently include soccer stadiums in Mexico and Venezuela, roads and a high-rise building in Mexico City, and a light-rail system in Puerto Rico, he says.

And plans call for the IT gear that was removed from the El Cajon Dam site to be used again in the construction of another dam on the same river 37 miles away.

SECURE SHARING IN THE LOWLANDS OF LOUISIANA

Sharing images of checks and other financial documents over wireless links has become standard procedure the 16 branch offies of Jennings, La.-based Jeff Davis Bank.

In an unusual setup, the bank runs data over unlicensed 5.7-MHz spectrum protected with Triple DES encryption

Fastest Growing Middleware

Source: Gartner "Market Share: Application Integration, Middleware and Portal Software," Worldwide, 2005.
Based on 2005 license revenue worldwide.

> **“In today’s environment, with imaging, you have to find ways to get the bandwidth, and traditional means are very expensive. I’d recommend this to everybody.**
>
> **BRENT COURREGE,** CHIEF OPERATIONS OFFICER, JEFF DAVIS BANK

technology from ERF Wireless Inc. in League City, Texas. In addition to data, Jeff Davis sends voice calls over the wireless links using voice-over-IP (VoIP) technology, says Brent Courrege, chief operations officer at the bank.

The system was first rolled out in 2005 to the bank’s southwest Louisiana operations. It was developed to replace dedicated wired links that supported throughput of 56Kbit/sec. to 256Kbit/sec. “We were getting into heavier document-imaging expansion and needed more bandwidth to move all that,” Courrege says.

Courrege realized that running sensitive data over unlicensed spectrum was unusual and would require sophisticated security. He says he found ERF Wireless through other ventures Jeff Davis Bank had undertaken and saw it as a pioneer in supporting the wireless alternative.

ERF Wireless’ BranchNet system relies on Motorola Inc.’s Canopy wireless technology, which was first developed in 2001, says John Burns, CEO of ERF Enterprise Network Services, a division of ERF Wireless. The system can provide point-to-point wireless connectivity at distances of up to 80 miles, according to Motorola. ERF Wireless uses an encryption system called CryptoVue that incorporates software in a hardware device at each branch location.

Burns says the bank’s system covers about 5,000 square miles and delivers 20Mbit/sec. performance. For about $700,000, the bank has plenty of bandwidth for its growing needs.

With the addition of VoIP calling for 250 bank employees at the various offices this year, the bank is saving the cost of phone calls among branches, Courrege says. The VoIP system and phones from Executone Systems Company of Louisiana Inc. in Metairie cost the bank about $300,000. The setup is expected to produce a steady ROI, although Courrege says he hasn’t yet tabulated the savings.

The wireless system went down when Jeff Davis lost its connectivity for about two weeks in September 2005 because of Hurricane Rita, which knocked down several transmission towers for BranchNet, Courrege says. But he adds that ERF Wireless crews restored the transmissions even before the electric utility had restored power to the area.

CHALLENGES AND BENEFITS

Jeff Davis Bank

CHALLENGES
- Bandwidth
- Security
- Wide-area connectivity

BENEFITS
- Secure image- and document-sharing
- 5,000-square-mile range with 20Mbit/sec. performance
- VoIP calling via wireless links

Courrege says his bank and its board have always been “very progressive” about finding new technologies to lessen expenses and to increase opportunities. That outlook contributed to the acceptance of the BranchNet concept and greater use of digital imaging, which had prompted the need for added bandwidth.

“In today’s environment, with imaging, you have to find ways to get the bandwidth, and traditional means are very expensive,” Courrege says. “I’d recommend this to everybody.”

Jeff Davis and five other banks are using the BranchNet wireless system, Burns says.

ERF Wireless expects to earn about $8 million in revenue this year, making it one of the smaller vendors in the wireless market, where companies are expanding into wireless mesh, Wi-Fi and WiMax, among other technologies.

But Courrege says that he isn’t concerned by ERF Wireless’ size. If the vendor experienced difficulty, the Motorola technology could likely be maintained by another vendor, he says.

As these and other creative applications illustrate, wireless isn’t just iPhones and laptops. “Access to real-time information is what business is all about these days,” Gold says. “It’s all about doing business more flexibly and allowing workers to stay connected.

“Wireless uses are highly variable for businesses,” he says. “Whether workers use BlackBerries, laptops, cell phones or Wi-Fi, if the technology makes it easier for users to do their jobs, it’s probably worthwhile.” ■

Oracle Fusion Middleware
Hot-Pluggable. Comprehensive.
ORACLE®
Copyright © 2006, Oracle. All rights reserved. Oracle, JD Edwards, PeopleSoft and Siebel are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.
oracle.com/goto/middleware
or call 1.800.ORACLE.1

CHALLENGES AND BENEFITS

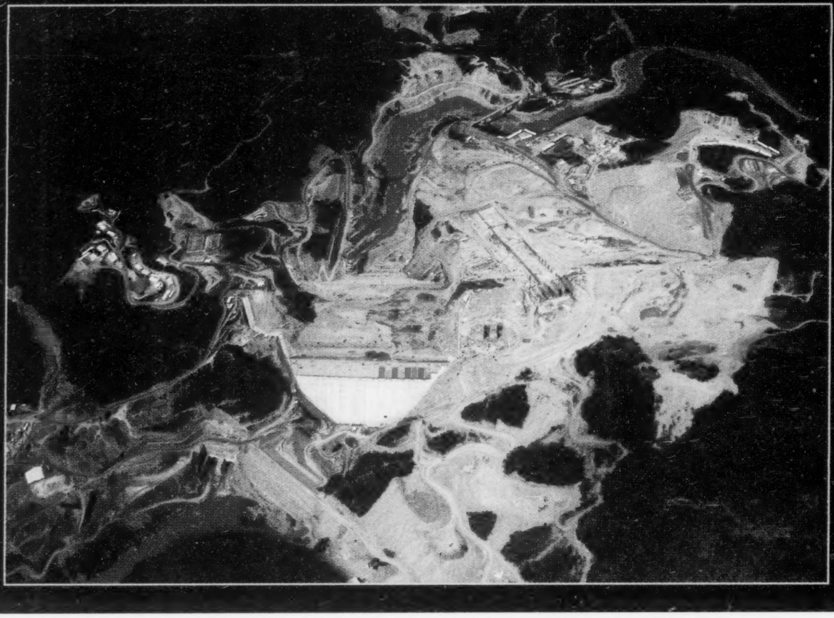
El Cajon Dam

CHALLENGES

- Remote location
- Extreme environment:
  - Mountains
  - Wet climate
  - 17 below-ground locations

BENEFITS

- Infrastructure cost savings:
  - 38 miles of fiber-optic cable not laid
  - 14 miles of copper cable not laid
- Minimal environmental impact
- Reusable components



» The wireless network at El Cajon Dam facilitated communication and supported efficient distribution of documents, including orders for concrete.

Continued from page 36

produce a high return on investment (ROI), says Jack Gold, a wireless analyst at J.Gold Associates LLC in Northboro, Mass. But he says IT managers can raise the probability of a good ROI with careful planning and pilot testing of the technology.

In fact, El Cajon became a laboratory for learning about wireless deployments for Orozco and Mexico City-based ICA. They learned, for example, that using wireless technology cut out the cost of building wired infrastructure. Orozco estimates that he avoided installing 38 miles of fiber-optic cable and 14 miles of copper cable. The wireless system also had less of an impact on the environment than a wired setup would have had, he says.

"We learned much for other projects," which currently include soccer stadiums in Mexico and Venezuela, roads and a high-rise building in Mexico City, and a light-rail system in Puerto Rico, he says.

And plans call for the IT gear that was removed from the El Cajon Dam site to be used again in the construction of another dam on the same river 37 miles away.

SECURE SHARING IN THE LOWLANDS OF LOUISIANA

Sharing images of checks and other financial documents over wireless links has become standard procedure the 16 branch offies of Jennings, La.-based Jeff Davis Bank.

In an unusual setup, the bank runs data over unlicensed 5.7-MHz spectrum protected with Triple DES encryption

Fastest Growing Middleware

Source: Gartner "Market Share: Application Integration, Middleware and Portal Software," Worldwide, 2005.
Based on 2005 license revenue worldwide.

Copyright
of Oracle C

> **“In today’s environment, with imaging, you have to find ways to get the bandwidth, and traditional means are very expensive. I’d recommend this to everybody.**
>
> **BRENT COURREGE,**
> CHIEF OPERATIONS OFFICER, JEFF DAVIS BANK

technology from ERF Wireless Inc. in League City, Texas. In addition to data, Jeff Davis sends voice calls over the wireless links using voice-over-IP (VoIP) technology, says Brent Courrege, chief operations officer at the bank.

The system was first rolled out in 2005 to the bank’s southwest Louisiana operations. It was developed to replace dedicated wired links that supported throughput of 56Kbit/sec. to 256Kbit/sec. “We were getting into heavier document-imaging expansion and needed more bandwidth to move all that,” Courrege says.

Courrege realized that running sensitive data over unlicensed spectrum was unusual and would require sophisticated security. He says he found ERF Wireless through other ventures Jeff Davis Bank had undertaken and saw it as a pioneer in supporting the wireless alternative.

ERF Wireless’ BranchNet system relies on Motorola Inc.’s Canopy wireless technology, which was first developed in 2001, says John Burns, CEO of ERF Enterprise Network Services, a division of ERF Wireless. The system can provide point-to-point wireless connectivity at distances of up to 80 miles, according to Motorola. ERF Wireless uses an encryption system called CryptoVue that incorporates software in a hardware device at each branch location.

Burns says the bank’s system covers about 5,000 square miles and delivers 20Mbit/sec. performance. For about $700,000, the bank has plenty of bandwidth for its growing needs.

With the addition of VoIP calling for 250 bank employees at the various offices this year, the bank is saving the cost of phone calls among branches, Courrege says. The VoIP system and phones from Executone Systems Company of Louisiana Inc. in Metairie cost the bank about $300,000. The setup is expected to produce a steady ROI, although Courrege says he hasn’t yet tabulated the savings.

The wireless system went down when Jeff Davis lost its connectivity for about two weeks in September 2005 because of Hurricane Rita, which knocked down several transmission towers for BranchNet, Courrege says. But he adds that ERF Wireless crews restored the transmissions even before the electric utility had restored power to the area.

Courrege says his bank and its board have always been “very progressive” about finding new technologies to lessen expenses and to increase opportunities. That outlook contributed to the acceptance of the BranchNet concept and greater use of digital imaging, which had prompted the need for added bandwidth.

“In today’s environment, with imaging, you have to find ways to get the bandwidth, and traditional means are very expensive,” Courrege says. “I’d recommend this to everybody.”

Jeff Davis and five other banks are using the BranchNet wireless system, Burns says.

ERF Wireless expects to earn about $8 million in revenue this year, making it one of the smaller vendors in the wireless market, where companies are expanding into wireless mesh, Wi-Fi and WiMax, among other technologies.

But Courrege says that he isn’t concerned by ERF Wireless’ size. If the vendor experienced difficulty, the Motorola technology could likely be maintained by another vendor, he says.

As these and other creative applications illustrate, wireless isn’t just iPhones and laptops. “Access to real-time information is what business is all about these days,” Gold says. “It’s all about doing business more flexibly and allowing workers to stay connected.

“Wireless uses are highly variable for businesses,” he says. “Whether workers use BlackBerries, laptops, cell phones or Wi-Fi, if the technology makes it easier for users to do their jobs, it’s probably worthwhile.” ■

CHALLENGES AND BENEFITS

Jeff Davis Bank

CHALLENGES

- Bandwidth
- Security
- Wide-area connectivity

BENEFITS

- Secure image- and document-sharing
- 5,000-square-mile range with 20Mbit/sec. performance
- VoIP calling via wireless links

Oracle Fusion Middleware
Hot-Pluggable. Comprehensive.

ORACLE®

ght © 2006, Oracle. All rights reserved. Oracle, JD Edwards, PeopleSoft and Siebel are registered trademarks
:le Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

oracle.com/goto/middleware
or call 1.800.ORACLE.1

New Flexible Computing Solutions:

Centralized Control of Data Security and Image Management

Businesses today are faced with more complex challenges than ever before. Managing and supporting a more distributed workforce has introduced increased concern around data security, compliance and disaster recovery. Costs seem to continually rise while budgets seem to keep shrinking, driving the need to optimize IT resources in every way possible without compromising end-user or business productivity.

Organizations from large enterprises to small school districts have begun to address these challenges with innovative solutions that include alternative or new forms of computing. Many alternative computing options can help address business challenges by centralizing IT data control and image management, allowing for tight data security, easy image management and easily met regulatory compliance.

Although some alternative computing models, like thin computing, have been around for a while, not all have been completely successful in delivering true benefits. This may be partially due to the fact that the benefit is somewhat imbalanced – focused more on IT control than on end-user experience, or due to the fact that implementing an alternative computing infrastructure can be completely daunting, not to mention difficult.

Organizations must perform a comprehensive assessment of their existing infrastructure, which can be costly and time-consuming. Only then can they determine which components in their infrastructure must be changed or deployed. Deployment often requires piecing together components from multiple vendors. Many organizations are naturally overloaded by managing a wide array of hardware and software components, as well as the complexity of working with multiple vendors and dozens of contracts for service and support.

Dell Flexible Computing Solution:
A Full Range of Tested and Validated Components

- Storage: **Dell PowerEdge 2900 NAS**
- Clients: **Diskless Dell OptiPlex 745 or Dell OptiPlex 755***
- Servers: **Dell PowerEdge 2950 Server**
- Networking/Switch: **Dell PowerConnect Gigabit Switch**
- Software: **Citrix® Provisioning Server for Desktops**
- Services: **Dell Professional Assessment, Design and Deployment**
- Support: **Single Point of Contact, via single toll-free number, for Complete Solution Support**

Flexible Computing is the Answer

Developed around unique customer needs, Dell's Flexible Computing Solution, On-Demand Desktop Streaming, addresses these customer challenges, without creating new ones for IT. On-Demand Desktop Streaming is an integrated end-to-end solution that can help streamline an organization's computing environment.

Dell helps simplify IT with tailored solutions and a single source for all computing needs, including hardware, software and expert guidance for assessing, designing and deploying the Dell computing infrastructures. With Dell pulling it all together, organizations can experience reliability, given that the client, server, network and software have all been tested together and validated by Dell. And Dell's uniquely balanced approach helps provide IT administrators with the centralized control they desire without compromising business productivity or the end user experience.

Today, Dell's initial Flexible Computing Solution, On-Demand Desktop Streaming, supports consolidated computing for LAN-based users. Eventually, Flexible Computing will evolve to support and accommodate users on any device, anywhere they might be.

Dell makes moving to a new and more centralized computing model less daunting and easier to manage for organizations of all types – from large enterprises to schools, healthcare and government agencies.

Several Components – One Source

Dell's On-Demand Desktop Streaming provides IT centralized control of data and image management for LAN-based users via operating system, application and virtual disk streaming. On-Demand Desktop Streaming utilizes diskless PCs in conjunction with server-based software. A complete disk image is streamed to the PC, so users perform their typical operations while all data is securely written to the server storage location instead of on their local hard drive.

The solution is comprised of several key IT infrastructure components: Dell's PowerEdge™ 2950 server and diskless OptiPlex™ 745 and OptiPlex™ 755* desktops, Dell's PowerEdge™ 2900 NAS for additional storage, PowerConnect™ Gigabit switch, Citrix Desktop Server software and Dell Assessment, Design and Deployment Services – all provided through one source.

Broadcom, a global leader in semiconductors for wired and wireless communications, increases network bandwidth and helps to provide secure and reliable connectivity for Dell's Ethernet-based On-Demand Desktop Streaming Solution. As an industry Ethernet leader, Broadcom provides state-of-the-art networking solutions for Dell servers, desktops and notebooks. Broadcom's NetXtreme® and NetXtreme II Gigabit Ethernet solutions help simplify network management and are designed to increase flexibility, optimize server efficiency and improve application performance.

The solution's adaptable and flexible architecture meets the needs of various users and provides an optimal end-user experience, since CPU and graphics processing remain on the client. Image management and software updating can become more streamlined, leading to easier overall image deployment and management.

"If you're trying to standardize your IT infrastructure, Dell can facilitate it across the board in a way that I don't think any other company can match," according to Lee Steinsdoerfer, technology director, Zion-Benton Township High School, which deployed the Flexible Computing Solution. "When you put the whole package together, Dell is very hard to beat." (See *Standardized IT Infrastructure Solution Increases Productivity, Simplifies Image Management*) ◇

For more information on Dell Flexible Computing Solutions, please visit www.dell.com/flexcomputing

Sponsored by:

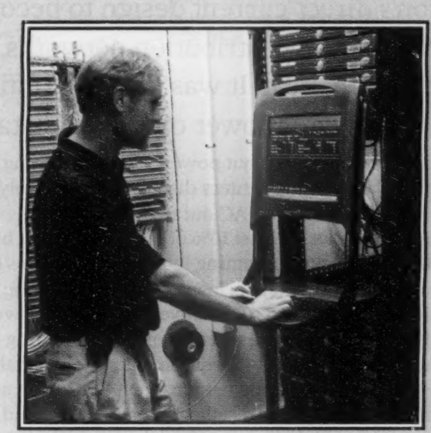
DELL

BROADCOM.
Connecting everything

Standardized IT Infrastructure Solution Increases Productivity, Simplifies Image Management

While not a large enterprise, Zion-Benton Township High School, located on Lake Michigan near Chicago, counts on technology in its business productivity lab, library and administrative office to help educate its 2,600 students.

Facing the same challenges as any business, updating the high school's standard software image had become labor-intensive and time-consuming. The school's heterogeneous IT infrastructure had also become difficult to manage, limiting its ability to adopt new applications and taking time away from other IT tasks.



"We were using many different suppliers of desktops and servers. Staying current on all those systems took a lot of our time," says Lee Steinsdoerfer, technology director at Zion-Benton. "If we standardized on a smaller number of vendors, our training needs would be reduced and our IT staff would be more productive. That would reduce overall costs."

To provide a consistent user experience, help increase efficiency and improve manageability, the district decided to standardize on a single vendor and streamline the client PC imaging process. "Standardizing on Dell has enabled us to do that, Steinsdoerfer says. "And from the perspective of ongoing maintenance, we now have a single point of contact where we can get answers fast."

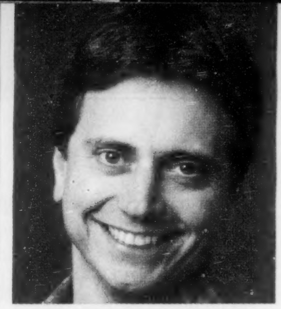
Zion-Benton Township High School deployed Dell's Flexible Computing Solution for On-Demand Desktop Streaming to simplify image management. It also deployed Dell OptiPlex™ desktop computers, with 85 percent utilized as On-Demand Desktop Streaming clients. Dell PowerEdge™ servers host the Citrix Desktop Streaming software. Dell PowerConnect™ switches link the servers to the clients.

At Zion-Benton, the biggest IT productivity boost has come from eliminating the need to manually image desktop PCs. "What used to take five weeks, now takes just one day," Steinsdoerfer reports.

By automatically refreshing the client images for each new school year with Dell's Desktop Streaming Solution, Zion-Benton now saves approximately five weeks of work. IT can respond more quickly to teacher requests for new applications and updates throughout the year, and students and teachers receive a consistent user experience no matter which computer they use. The infrastructure is less time-consuming to manage, freeing IT staff to focus on more strategic tasks.

■ OPINION

Robert L. Mitchell



Edison's Revenge

NIKOLA TESLA must be rolling over in his grave. More than 100 years ago, he invented the alternating current network, which trumped Thomas Edison's direct current design to become the standard for electric power distribution networks. AC won because it was more practical. It was the more efficient and economical way to transmit power over long distances.

Now the debate has risen anew, and passions are again running high. But this time, the battleground is over which is most energy efficient — and practical — as the distribution network for increasingly power-constrained data centers.

Edison may finally have his revenge. Or will he?

"You'll find people who are religiously convinced in both directions," says John Pflueger, technology strategist at Dell and a board director at The Green Grid consortium. Many of those debates are raging within companies that are building new data center equipment, and The Green Grid is at the center. It launched a power distribution options study, due by year's end, which is investigating seven alternatives. Three of those specify DC voltages.

IT equipment power supplies convert incoming AC power to the various DC voltages the subcomponents require. While some equipment also accepts DC input power, most data centers distribute 208-volt AC out to the racks. At least 10% of the AC power coming into data centers is lost to AC/DC and DC/AC conversion inefficiencies before it reaches the IT equipment.

"Every conversion step is maybe 90% efficient on a good day," says HP senior technologist and Green Grid board director Roger Tipley. That wasted energy creates heat that must be removed, increasing air conditioning loads.

DC returned to the forefront with the 2006 release of a paper by Lawrence Berkeley National Laboratory researcher William Tschudi. It showed a 20% overall efficiency gain in the data center by moving to a 380-volt DC power distribution scheme. "Distributing DC would be relatively easy," Tschudi says.

■ The distribution rails required for -48-volt DC could resemble an overhead train trestle.

That has some IT executives excited. "We're studying it for a new data center we're looking at building in the next two and a half years," says Bob Culver, senior vice president and manager of technology information group facilities at Wells Fargo.

Joseph Hedgecock, senior vice president and head of platform and data centers at Lehman Brothers, says he is also taking a hard look at DC.

"There's a lot of buzz, and a lot of interest in using DC power in the data center," says Peter Gross, CEO at EYP Mission Critical Facilities, which designs data centers.

But DC is far from a slam-dunk. Of the three proposed DC voltages, only the smallest — the -48-volt telco facility standard — is in use today. But such low voltage requires high current, and thus large cables, to deliver the kind of power that large data centers need. The distribution rails required could resemble an overhead train trestle. A proposed 380-volt standard would use lower current and thus smaller conductors. It also exactly matches the uninterruptible power supply's operating voltage, making it very efficient. A proposed 550-volt DC standard would use even smaller cables. But using either 380- or 550-volt DC would require the development of an entirely new infrastructure.

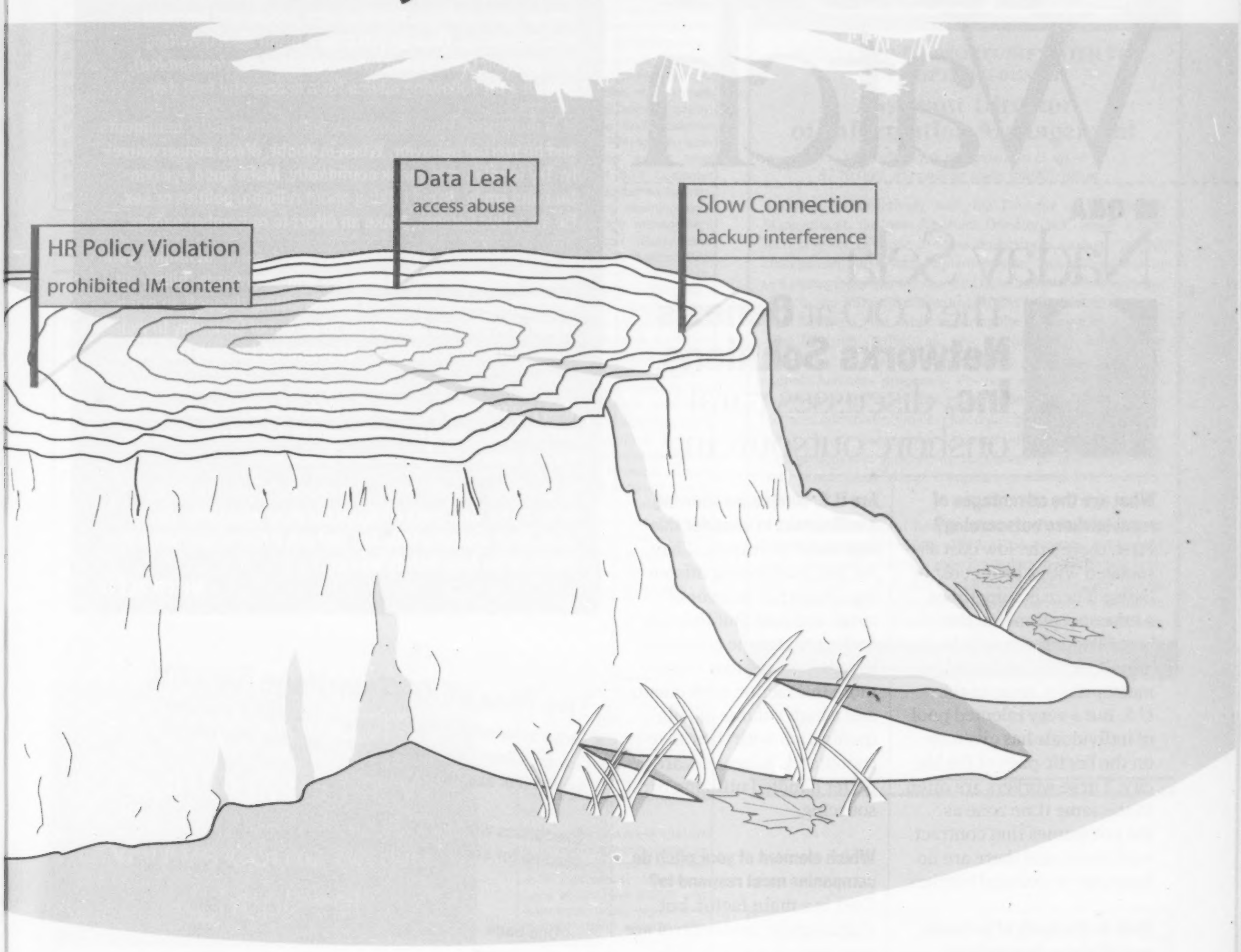
Meanwhile, conversion efficiencies for AC infrastructures have been increasing. American Power Conversion claims 96% efficiency for its newest UPSs, and the latest enterprise-class servers have moved power supply efficiencies from the 70%-to-80% range to over 90%, even when running at low utilization levels.

There still may be efficiency benefits from DC power, but they won't be enough to get DC off the ground. Adopting DC would mean maintaining two power distribution infrastructures, since there will always be equipment in the data center that needs AC. And without a major financial payback, organizations are unlikely to invest the time and money to move into new and uncharted territory.

Even if DC wins the battle for energy-efficiency supremacy, it will still lose the war. Tesla can rest easy. ■

Interop NYC
visit booth #329
Oct. 24-25

Know your network roots.



Stop playing 20 questions.

For a trusted approach to problem resolution rely on the Network Instruments® GigaStor™ appliance. Everything is recorded—every packet, every protocol, every transaction for hours, days, even weeks. The unique GigaStor interface provides an effective way to go back in time to determine not only when the application went down but *why*.

Resolve intermittent problems, track compliance efforts, isolate VoIP quality issues, and more on the most complex WAN, Gigabit, and 10 GbE networks. Find out how you can travel back in time with the GigaStor. After all, even your network has a history worth sharing.

GigaStor: Get proof. Take action. Move forward.

NETWORK® INSTRUMENTS

Learn more about GigaStor. 800-566-0919
www.NetworkInstruments.com/Time

© 2007 Network Instruments, LLC. All rights reserved. Network Instruments, GigaStor, and all associated logos are trademarks or registered trademarks of Network Instruments, LLC.

Career Watch

Q&A

Nadav Sela

The COO at **Genesis Networks Solutions Inc.** discusses rural onshore outsourcing.

What are the advantages of rural onshore outsourcing? First, there's the low cost associated with a lower cost of living. There is sometimes a misconception that the best IT talent can only be found overseas or in larger metropolitan areas of the U.S. But a very talented pool of individuals has given up on the hectic pace of the big city. These workers are often in the same time zone as the companies that contract with them, and there are no language or cultural barriers.

How do the costs of in-house and offshore development compare? Considering the low rates and elimination of overhead (office space, equipment, maintenance, HR), the savings over in-house could be 40% to 50%.

The raw hourly rates are about twice as high as offshore. However, there are savings related to management, efficiency, travel, communication and attrition. The high rate of attrition in offshore ventures is a big hidden expense.

Are U.S. companies showing a willingness to consider this approach? Definitely. They are not abandoning offshoring altogether in favor of rural sourcing. But they are finding that some activities, especially ones that require more interaction with clients and a high volume of communication with their metropolitan U.S. centers, are better handled utilizing rural sourcing.

Which element of your pitch do companies most respond to? Cost is a main factor, but management and control are very important. The time zone and geographical proximity combined with lack of language and cultural barriers make management and control both easier and less expensive when compared to offshore ventures.

Political support and showing good corporate citizenship are also important. This becomes a significant contributing factor, especially when dealing with Fortune 100 companies.

– JAMIE ECKLE

PAGE COMPILED BY JAMIE ECKLE.

First-Day Jitters

The first day on the job can be a daunting experience. You're in new surroundings, meeting new people and learning new processes. How do you cope? Brent Short, writing on Spherion Corp.'s blog (*www.spherion.com/careerblog*), provides the following advice for a successful first day:

- Make a good first impression with your actions, comments and nonverbal behavior. When in doubt, dress conservatively. Try to relax and speak confidently. Make good eye contact and smile. Avoid talking about religion, politics or sex. Be an active listener. Make an effort to remember names.
- Your first day will be filled with the logistics of finding your office, getting an e-mail address and passwords, filling out forms, meeting people, and maybe sitting through an orientation. People may ignore you or go out of their way to welcome you to the company – be prepared for both reactions.
- Don't shy away from asking questions; they demonstrate that you're eager to learn and understand the material. Observe what's going on around you in the workplace so you have a clearer idea of the way things work.
- Showing up early lets people know that you're excited to be there. And don't rush out the door when your day is over. Wait around a little bit, and ask if there's any work that needs to be done before leaving.

– MITCH BETTS

The Rise of the Two-Page Résumé

Those in hiring positions are more tolerant of two-page résumés than they were 10 years ago, and they seem to expect it of executive candidates.

Executives were asked, "What is the preferable length of a résumé for staff-level employees?" Their responses:

	Current	10 Years Ago
One page	52%	73%
Two pages	44%	25%
Three pages or more	3%	1%
Don't know/not sure	1%	1%

They were also asked, "What is the preferable length of a résumé for executives?" Their responses:

	Current	10 Years Ago
One page	7%	28%
Two pages	61%	64%
Three pages or more	31%	7%
Don't know/not sure	1%	1%

SOURCE: ROBERT HALF TECHNOLOGY SURVEY OF 150 SENIOR EXECUTIVES – INCLUDING THOSE IN HUMAN RESOURCES, FINANCE AND MARKETING DEPARTMENTS – AT THE 1,000 LARGEST COMPANIES IN THE U.S., JULY 2007

Momentum Plastics, LLC seeks degreed and experienced Programmer to work in Houston, Texas. Design and maintain program application using object-oriented techniques and computer graphics programs for promulgating illustrative report graphics. Develop numerical analysis programming using numerical method for quality control. Email Yulin Chen at yulin@momentumplastics.com Put job code #PGM3 on resume.

PROGRAMMER ANALYST w/2 yrs exp to analyze, dsgn & dev WIN based & web based s/ware using .NET, Oracle d/base, Visual Studio.NET, SQL Server, Visual Source Safe, PL/SQL, IIS & ASP.NET. Dsgn d/base, create d/base tables, dvlp stored procedures & triggers. Maintain & dvlp code & fix bugs. 2 yrs exp as Sr. S/ware Engr acceptable. Mail resumes to: BCC USA-NJ, Inc, 43 Stouts Lane, Monmouth Junction, NJ 08852. Job Loc: Monmouth Junction, NJ or in unanticipated locs in the U.S.

Wells Fargo has an opening for Technical Project Manager - Senior Associate in Minneapolis, MN. Perfoms complex project plans and budgets. Send resume to: Galliard Capital Management Attn: Terry Haynes, 800 LaSalle Ave, Suite 2060 Minneapolis, MN 55402-2033. PLEASE REFERENCE JOB CODE **3173685** when submitting resume.

Telecommunications Application Development Manager - TimeGroove, Inc., start up in Los Gatos, CA - MS + 3 yrs telecomm exp. Next Gen Networks (IMS, OMA, OSA). Resumes: bejocada@yahoo.com

SAS- the market leader in providing a new generation of business intelligence software is seeking a **Solutions Architect** in the **Boston, Massachusetts** area. Candidate will assist sales team with Customer Intelligence solution sales activities to maximize revenue opportunities and ensure the highest levels of customer satisfaction. Work closely with SAS sales teams to qualify, sell and close SAS Customer Intelligence (CRM) solution business. Develop expert level knowledge of SAS Customer Intelligence capabilities for marketing including reporting, analytics, campaign management and optimization. Guide sales teams on how to position SAS solution against competitors. Position requires a Bachelor's degree in Computer Science, Engineering or related field plus five years experience in position offered of as Technical Solutions Consultant or Sales Engineer. Candidate must have demonstrated experience with SAS technology, architecture and resources, technical solution sales or pre-sales experience in Customer Intelligence (CRM) market. For confidential consideration email your resume, indicating position title, position number and salary requirements to: Careers@sas.com. EOE/AA Employer. Drug free work environment screening required.

THE PORT OF LONG BEACH

OUTSTANDING OPPORTUNITY WITH THE PORT OF LONG BEACH!

Assistant Director of Information Management

The salary for this position is up to $120,000, depending upon qualifications.

Working collaboratively with the Director of Information Management, the new Assistant Director will create a new section in the Division to focus on business analysis, project management and system implementation. This includes acting as a strategic partner to other divisions and executive management in the full implementation of the Information Management Business Plan, while ensuring the Information Management Division's efforts are able to meet staff demands for technology, as well as implementing creative solutions to support business processes. Position requires a Bachelor's degree in computer science, information technology, public or business administration or related discipline, plus a minimum of six years in a public sector information technology management role supervising staff involved in the full range of IT functions. A Master's degree in a related field is highly desirable.

We offer an excellent benefits package. **Position closes on Friday, November 16th, 2007.** Please apply on-line at **www.polb.com** under the Jobs/Employment link. If you have any questions or require additional information, please contact Cynthia Stafford, Assistant Director of Human Resources, at (562) 590-4129, or humanresources@polb.com.

EQUAL OPPORTUNITY EMPLOYER

LOOKING FOR SOMETHING NEW?

You've come to the right place!

Find your ideal IT job through IT Careers. For additional IT positions, search www.ITCareers.com, our online database of over 20,000 jobs each month

COMPUTERWORLD IT CAREERS

System Analyst wanted by Sharebuilder Corp. Responsible for login and security, web site performance, natural search using web analytics and other tools. Minimum is master degree. Send resume to 1445 120 Ave NE, Bellevue WA 98005.

Programmer or system analysts or software engineers wanted by RS Systems Company to develop IT applications. Ideal applicants should have BS/MS with experience. Good wage. Travel required. Send resume with wage request to jobs@rssystems.com. EOE.

Synova has multiple openings for Project/Software Engineers, DBA, Syatem/Programmer Analysts. Job sites various. Minimum Requirement: MS/BS with 1-5 IT exp. Apply at ads@synovainc.com. EOE.

Controls Engineer: Develop control s/w & h/w for Automatic, Zone/Manual stations. Minimum is MS. Position focuses on embedded systems applications in VB.NET, C/C++ and Java2. Travel required. Send resume to Cinetic DyAG Corp, 23399 Commerce Dr. Suite B-7, Farmington Hills, MI 48335.

Computer Professionals needed (Edison)NJ based IT firm: Jr. Lvl positions: Programmer Analysts, S/w Engineers, Systems Analysts, Database Administrators to dvlp, create & modify general comp. applications s/w or specialized utility programs. Analyze user needs & dvlp S/w solutions.

Sr. Lvl positions :S/w Engineers, IT Mgr, MIS Mgr, Sr. Programmer Analyst to plan, direct or coordinate activities in such fields as electronic data processing, information systems, systems analysis & comp. programming. Apply w/2 copies of resume to RHT InfoWay, Inc, 974 Inman Avenue, Suite #2A, Edison, NJ-08820

Software Engineer w/Masters or for. equiv in Comp. Sci or Engg or Math & 1 yr exp. *Will accept Bach or for. equiv & 5 yrs of progressive work exp in lieu of Masters* or for. equiv & 1 yr exp. Research, plan, dev, test & doc prgms using C, C++, Rational Clear Case, Windows SDK, Documentum & Visual C++. Benchmark applic using Mercury Interactive LoadRunner. Dev scenarios to identify bottlenecks in DB2 & Weblogic applic. Dev code accord to reqmts. Analyze, review & alter prgms in AIX, Solaris, Websphere & Oracle. Exp prior to completion of edu acceptable. Mail Resumes to: Horizon Staffing Services LLC, 13706 Research Blvd., Ste #100, Austin, TX 78750 Job Loc: Austin, TX.

Business Analyst: Involve in all phases of SDLC & act as liaison between corporate business managers & IT division. Conduct JAD sessions W/Dev & QA to select the architecture of appln. Mge workload schedules & coord status review meetings W/PM, bus mgrs & team members. Understand & articulate bus req from user interviews & then convert req into functional spec. Dsgn & dev functional spec of fin & a/cing sys. Conduct monthly review to ensure accuracy of reporting by conducting quality control & improvements on system generated rep. BS/Equi in CS, MIS, CIS, Eng (any), Tech, Bus, Com, Math, or related W/2yr exp. Salary DOE. Refer PSK1005.

Market Research Analyst: Interpret internal trends & correlate these trends in industry. Provide analytic support using knowledge of operational systems & applications to create informative reports & analysis. Provide guidance & support to other analysts, manage project timelines, monitor & ensure data integrity, evaluate results, & summarize findings. Conduct research design & analytical methods. Analyze current activities, competitive environment, future trends, & make recommendations based on findings. Conduct primary & secondary market research related to increasing project utilization. Conduct detailed market research on identifying end-user needs & translate this into product offerings. BS/Equi in Bus, Mkting, Eco, Mgmt, Com, or related W/2yr exp. Salary DOE. Refer MS1006.

Email your resume to: njconsulting@tact.com OR mail to: Helios & Matheson North America, Inc, 77 Brant Avenue, Clark, NJ 07066.

Computer Professional (Bristol, PA) IT firm, Jr. Lvl positions: Programmer Analysts, S/w Eng, Sys Analysts, Business Analyst, Database Admins to dvlp, create & modify general comp. applications s/w or specialized utility programs. Analyze user needs & dvlp S/w solutions. Sr. Lvl position: Sr. Programmer Analyst, Sr. S/w Eng, Sr. Business Analyst, IT Mgr, MIS Mgr, ITS Director to plan, direct or coordinate activities in such fields as electronic data processing, information systems, systems analysis, Business analysis & comp. programming. Apply w/2 copies of resume to H.R.D, Surya Systems Inc, 1200 New Rodgers Road, Suite C7A, Bristol, PA-19007.

SOFTWARE QUALITY
ASSURANCE ENGINEER
(2 positions)

Acme Packet is currently looking for two Software Quality Assurance Engineers for the Burlington, MA location. Functional verification/testing of software features for VoIP protocols, system/configuration management, for our Net-Net Session Director. System testing for performance and development/implementation of test plans. Simulate field problems and prepare logs for issue resolving. Provide automation/ regression support in test suites.

Job One
Minimum Requiremenis: M.S. (or equivalent) in Electrical Eng. plus two years experience in software engineering. Experience must include: Cisco series routers and switches; networking/telephony protocols (Next Generation/TCP/IP); VoIP protocols (Call Manager, Voice Gateways); TCL language; Unix/Linux; Qos testing; scaling testing/analysis.

Job Two
Minimum Requirements: M.S. (or equivalent) in Computer Science or Electrical Engineering OR Employer will accept Bachelor's degree (or equivalent) in Computer Science or Electrical Engineering plus five years of progressively more responsible work in the field. Work experience must include: networking protocols (TCP/IP); VoIP protocols (SS7, SIP, RTP/RTCP); gateways and softswitches; testing tools (INET, Spectra2, Ethereal, Isoftphone); integration testing.

Send resumes/cover letters to: Susan Anderson, Acme Packet, Inc., 71 Third Avenue, Burlington, MA 01803.

◆

Sr. Software Developer (Mountain View, CA) Dsgn, dvlp & test anti-spyware s/ware & internet security technologies for consumers & enterprises. Reqs Masters or equiv in Comp Sci, Engg or related field & working knowl of dvlpg for VISTA compatibility; WIN32 API, COM dvlpmt. Submit resumes to HR Manager-RV, Webroot Software, Inc, 2560 55th St, Boulder, CO 80301.

COMPUTERWORLD

IT CAREERS

Annual Jobs Report and $alary Survey

November 12, 2007

Computerworld's IT Careers is your direct line of communication to qualified IT professionals. For 40 years, Computerworld has been the most trusted resource to stay informed of the latest news. Read by over 1,400,000 qualified IT professionals in print and over 2,200,000 monthly online visitors. Computerworld's IT Careers puts potential candidates at your fingertips through job postings, banners, e-newletters or print advertisements.

Computerworld's Annual Salary Survey and Jobs Report will appear in print as well as online on November 12. This special report will take an in-depth look at the job outlook for IT professionals including which skills offer the highest pay as companies are fighting to keep key talent.

Make sure your opportunities are visible within this highly anticipated report.

Call for details!

Print Deadline: October 31

For more information, please contact
Laura Wilkinson at 847-441-8877
or laura_wilkinson@itcareers.net.

SharkTank

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

The Ultimate Fix: Reformat That Drive!

Secretary's PC won't boot up, and the reason is clear from the error message: a memory fault due to bad RAM. "Since these cheap units were recently purchased from a local vendor, I recommended that she have the vendor pick it up and replace the memory," says a pilot fish on the scene. But a day later, fish notices the problem PC is still sitting idle on the secretary's desk. Have you called the vendor? fish asks. "Oh no," she tells him, "my manager said all we need to do is reformat the hard drive." Sighs fish, "Fortunately, the real problem prevented them from trying to do that."

Too Easy

New call center gets some large plasma screens to display statistics – but the facilities department installs them on one side of a wall and the PC that controls them on the other. "I just spent 10 minutes on the phone with our facilities manager trying to change the IP address of the machine," grumbles a pilot fish there. "An IT manager was working the keyboard and mouse and the facilities manager was yelling 'left, left, left, down, down, down, more, more, more, OK, too far!' I had them on mute most of the time so I could bring in other people to have a laugh at the insanity. Eventually, I just suggested he grab a flat panel off one of the call center PCs and plug it into the PC to see what he was doing. His response: 'Oooooohhhhh, good idea . . .' "

Unclear on The Concept

It's the late 1990s, and the government office where this pilot fish works handles requests for lists of registered voters. "It was my job to field orders, help people decide what they wanted and then produce the data file," fish says. "It always amazed me when people would call and request a list of all the *unregistered* voters in a district. I'd explain that we only had lists of registered voters. They would then ask how they could get the unregistered list. Tongue firmly in cheek, I would suggest that they purchase our list, print it out and then compare that list with a phone book. They would usually thank me for my assistance and not order anything at that time but say that they would get back to me."

User Logic

User's PC has mysterious problems, and nothing seems to help – until this pilot fish starts to take it apart and discovers a calendar attached to the case with a small but very strong industrial magnet. Do you realize what a magnet this powerful can do to a computer? fish asks. User: "But it's being shielded by the calendar paper!"

■ *Don't shield Sharky from your true tale of IT life. Send it to me at sharky@computerworld.com, and I'll send you a stylish Shark shirt if I use it.*

COMPUTERWORLD.COM

NEED TO VENT YOUR SPLEEN?

Toss some chum into the roiling waters of Shark Bait. It's therapeutic! **sharkbait.computerworld.com**.

CHECK OUT Sharky's blog, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharky**.

■ COMPANIES IN THIS ISSUE

Page number refers to page on which story begins. Company names can also be searched at computerworld.com

Apple Inc.	7, 10
Arlington Chamber of Commerce	25
Avid Technology Inc.	14
Berkeley Data Systems Inc.	15
Bill & Melinda Gates Foundation	30
Blackboard Inc.	12
BoardVantage Inc.	17
Boomi Inc.	17
Bureau of Labor Statistics	26
California Credit Union League	10
California State University, San Marcos	14
Challenger, Gray & Christmas Inc.	25, 28
China TechFaith Wireless Communication Technology Inc.	10
Cisco Systems Inc.	16, 36
CommVault Systems Inc.	7
Compellent Technologies Inc.	12
Country Insurance & Financial Services	28
Coupa Software Inc.	17
Credit Suisse Group	26
Crowe Chizek and Co.	16
Data Domain Inc.	7
Daum Communications Corp.	10
Dell Inc.	42
Dow Jones & Co.	10
Duke University	15
Elekta AB	10
EMC Corp.	7, 12, 14
Enron North America Corp.	4
Enterprise Strategy Group Inc.	7
ERF Enterprise Network Services	39
ERF Wireless Inc.	39
Executone Systems Company of Louisiana Inc.	39
EYP Mission Critical Facilities Inc.	42
FBI	4
Ferris Research Inc.	16
Fidelity Investments	26
Focus Data Solutions Inc.	28
Forrester Research Inc.	8
Genesis Networks Solutions Inc.	44
Google Inc.	8
Greater Raleigh Chamber of Commerce	25, 26, 28
Harris Corp.	30
Hewlett-Packard Co.	8, 42
Hitachi Data Systems Corp.	12
IBM	7, 30
IDC	12, 15, 17
InComm Holdings Inc.	7
Ingenieros Civiles Asociados	38
Iron Mountain Inc.	15
iTech	28
J.Gold Associates LLC	38
Jeff Davis Bank	38
Korea Fair Trade Commission	10
Lawrence Berkeley National Laboratory	42
Lehman Brothers Holdings Inc.	42
Lionbridge Technologies Inc.	16
LiveVox Inc.	17
Microsoft Corp.	7, 8, 10, 12, 16, 22
Monster Inc.	28
Motorola Inc.	29, 30, 39
National LambdaRail LLC	30
Navajo Nation Council	29, 30
Navajo Nation Department of Information Technology	29
Navajo Technical College	29, 30
Network Appliance Inc.	14, 26
New Mexico Indian Affairs Department	29
Novell Inc.	12, 22
Open Source Initiative	8
Oracle Corp.	12
RealNetworks Inc.	10
Red Hat Inc.	8
Robert Half Technology	44
Salesforce.com Inc.	17
Salisbury University	12
Santa Clara Chamber of Commerce and Convention-Visitors Bureau	28
SAP AG	8
Shenzhen Security Software Science and Technology Development Co.	10
Spherion Corp.	44
State Farm Mutual Automobile Insurance Co.	28
SUSE Linux AG	22
Symantec Corp.	7, 34
Tata Consultancy Services Ltd.	8
The Green Grid	42
The Linux Foundation	20
The Nielsen Co.	8
Troutman Sanders LLP	7
U.S. Census Bureau	25, 26, 28
Unisys Corp.	10
University of Helsinki	20
University of New Mexico School of Medicine	30
University of North Texas	12
University of Pittsburgh	14, 15
VMware Inc.	7, 14
Wal-Mart Stores Inc.	8
Wells Fargo & Co.	42
Women in Technology International	28
Wyse Technology Inc.	17
Xerox Corp.	48
Yankee Group Research Inc.	17
Yasu Technologies	8
YouTube Inc.	12

ADVERTISERS INDEX

BigFix www.bigfix.com/discovery7	31
Cognos www.cognos.com/actionhero	14-15
Dell www.dell.com/flexcomputing	40-41
Fujitsu Computer Systems Corporation us.fujitsu.com/computers/smallwonder	13
Hewlett-Packard Alternative Thinking hp.com/alt	18-19
Hewlett-Packard ProLiant hp.com/go/sim7	C4
IBM Blade ibm.com/outwithcables	27
IBM IT Campaign ibm.com/takebackcontrol/soa	C2-1
IBM IT Campaign ibm.com/takebackcontrol/accurate	9
IBM IT Campaign ibm.com/takebackcontrol/green	11
Intel intel.com/xeon	33, 35
Microsoft Linux www.microsoft.com/reliable	C3
NEC www.necus.com/digitalsignage	5
Network Instruments www.NetworkInstruments.com/Time	43
Novell www.moreinterop.com	21
Oracle oracle.com/goto/middleware	38-39
Samsung www.samsungssd.com	37
SAS www.sas.com/ostriches	3

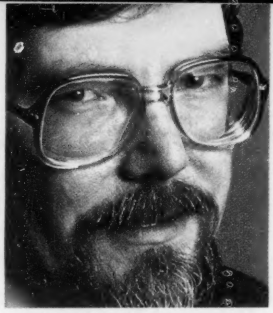
This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement #41321518. **CANADIAN POSTMASTER:** Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A 7C9. Computerworld (ISSN 0010-4841) is published weekly: except for a single combined issue the first two weeks of July and the last two weeks of December by Computerworld, Inc., 1 Speen Street, Box 9171, Framingham, Mass. 01701-9171. Copyright 2007 by Computerworld Inc. All rights reserved. Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased from the circulation department. Photocopy rights: permission to photocopy for internal or personal use is granted by Computerworld Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $3 per copy of the article, plus 50 cents per page, is paid directly to Copyright Clearance Center, 27 Congress St., Salem, Mass. 01970. Reprints (minimum 100 copies) and permission to reprint may be purchased from Renee Smith, Computerworld Reprints, c/o Reprint Management Services, Greenfield Corporate Center, 1808 Colonial Village Lane, Lancaster, Pa., 17601, (717) 399-1900, Ext. 150. Fax: (717) 399-8900. Web site: www.reprintbuyer.com. E-mail: computerworld@reprintbuyer.com. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: $5 per copy: U.S. – $99.99 per year; Canada – $130 per year; Central & So. America. $250 per year; Europe – $295 per year; all other countries – $295 per year. Subscriptions call toll-free (888) 559-7327. **POSTMASTER:** Send Form 3579 (Change of Address) to Computerworld, PO Box 3500, Northbrook, Ill. 60065-3500.

BPA WORLDWIDE ABM RED TAG

■ FRANKLY SPEAKING

Frank Hayes



12 Tools I Want

HERE'S WHAT WE KNOW: Consumer-level gadgets and add-ons will continue to play an ever bigger role in how our users do their jobs. We know this, too: With only a few exceptions, gadget makers couldn't innovate to save their skins. They happily clone whatever happens to be selling at the moment.

So if we want those gizmos to meet real needs for either IT or our users, we'll have to start coming up with ideas ourselves.

That's not as easy as it sounds. We're in the same kind of rut as those copycat gadget makers. Our mind-set is formed by decades of IT experience. We know what we've always done, and we figure the future will look a lot like the past — just smaller, faster and shinier.

Trouble is, Moore's Law has made much of our thinking obsolete. Many limitations that shaped that thinking no longer exist. We have processing power to burn, but we still treat it as a scarce resource. And users have less spare time than ever, but we still assume they should be the ones who adjust to technology, instead of the other way around.

Enough already. Here are a dozen gadgets, software add-ons and features that I'd like to have. They all use available technology. They'd all be good for users *and* for IT. Some of them would even be easy to create.

Then why is it so hard to get:

A USB key that unlocks my PC and transparently handles hard drive encryption, network encryption and passwords? I have a key for my car. Why not my PC?

An e-mail filter that blacklists languages, or at least character sets? Look, I can't read any of that spam in Russian anyway.

An automatic two-minute delay on outgoing e-mail? There's no practical way of actually recalling embarrassingly stupid e-mail messages. But with today's fast networks, what's the big rush when I click "Send"?

■ Moore's Law has made much of our thinking obsolete.

A usable virtual screen for laptops? A tiny projector would do it. So would lightweight LCD glasses. Instead, I can't open my laptop's screen on an airplane when the guy in front of me decides to sit back and relax.

A full-size, full-stroke laptop keyboard? Or here's an idea: Break apart the laptop into a full-size folding keyboard, a virtual display and a little box with a few slots. That's more flexible and less bulky, and it would save time at airport security.

Personal version control for documents? I want to keep multiple versions of the same document with the same name — and only use their different time stamps to tell them apart. What's so hard about that?

Automatic local backup on encrypted external storage? And I want it to run in the background, all the time, so I can't possibly forget to back up my files.

One-click cleanup? Where the hard-disk image returns to an absolutely known state. So long to worms, rootkits and installations gone wrong.

Voice recognition that understands me when I say "Stop"? Or "Nooooo!" And actually halts the erase, upload, download or other misbegotten operation I want to abort. It would be a bonus if it also recognized "Go back."

Undelete that really works? As in, works with that automatic local backup I also want.

A smart credit card for travel expenses? One that will tell me what I spent money on, where, when and how much — not on my statement, but later that day, when I'm filling out that idiotic still-on-paper T&E form.

A high-impact-resistant, waterproof mobile phone? The kind that will survive falling into sinks, toilets and parking-lot puddles, and maybe even out a window. I wouldn't even mind if it couldn't download songs or play videos — as long as it could take my abuse. ■

Frank Hayes *is Computerworld's senior news columnist. Contact him at frank_hayes@computerworld.com.*

For all stories go to www.microsoft.com/reliable

Microsoft

The Highly Reliable Times

VOLUME 1 – ISSUE 5

Windows Server 2003

SWISS SEES RELIABILITY SOAR WITH WINDOWS SERVER, CHECKS RED HAT AT GATE

Tom Nagy for The Highly Reliable Times

THE SWISS INTERNATIONAL AIR LINES hub, located in Zurich, Switzerland.

> *"Windows Server has given us the reliability to grow our online services and differentiate ourselves from the competition. With Linux, we didn't get the reliability or flexibility we needed."*
>
> *–Frank Meyer, CIO, SWISS*

Global Airline's Migration Yields 99.95% Reliability

By MICHAEL BETTENDORF

ZURICH—Swiss International Air Lines (SWISS), Switzerland's national airline, serves 70 destinations around the world with 6,500 employees in 105 branch offices. Today, 14% of SWISS's total ticket sales are processed through its online flight booking system at Swiss.com, with volume increasing by 30% per year. 24x7 operations are critical for this site because of its importance to the airline's business, but the original Red Hat Linux–based booking system was not meeting SWISS's requirements. So the airline began its search for a more reliable platform.

Reliability also drives market perception in the airline industry, according to SWISS CIO Frank Meyer. "In our business, having a plane in the maintenance hangar is not good for our image. It is the same for our online service—people expect it to be up and running," says Meyer.

After an intensive evaluation, Meyer and his team chose Windows Server® 2003 and .NET. Since migrating the online booking system to Windows Server, SWISS has seen reliability rise to 99.95%. In addition, while the previous Red Hat Linux–based system could only handle 250 concurrent users, the new system can now handle significantly more traffic than that. Meyer is confident about the effect of these changes: "Moving uptime to 99.95% while increasing performance to handle a greater number of users enables our team to easily handle the 30% growth we are seeing in our online sales."

For the full SWISS story, plus other case studies and independent research findings on the reliability of Windows Server versus Linux, visit microsoft.com/reliable

STUDY: Side effects of reliability can include smiling, calmness

A study released today shows significant mood improvement in IT executives such as Frank Meyer (left) when they experience Windows Server reliability. *– Continued on Page B3*

BAY DE NOC COMMUNITY COLLEGE LRC
0 1986 0037811 3

Alternative Thinking About Reliability:

KEEP DOWNTIME WHERE
IT BELONGS:
OUTSIDE THE OFFICE.

The HP ProLiant DL380 G5 server comes with Systems Insight Manager (SIM) software. HP SIM has shown an average reduction in server downtime[1] of 77%, by monitoring your system and alerting you of potential server problems before they occur.

Technology for better business outcomes.

intel
Xeon® inside™
Quad-core.
Unmatched.

HP ProLiant DL380 G5
$2249 (Save $1078)
Lease for as low as $58/mo[3] for 48 months
Check hp.com for the most up-to-date pricing
Smart Buy (PN: 470064-511)
- Quad-Core Intel® Xeon® Processor
- 2GB PC2-5300 memory
- Supports small form factor, high-performance SAS or low-cost SATA hard drive
- Smart Array P400 controller
- Integrated Lights-Out (iLO2), Systems Insight Manager, SmartStart

Get More:
Smart Buy 24x7, 4 hour response, 3 years (PN: UE894E) $689
Smart Buy Add 1GB additional memory, (PN: 397409-S21) $189

HP StorageWorks Ultrium 448 Tape Drive SAS Bundle[2]
$1899
Lease for as low as $54/mo[3] for 48 months
Smart Buy (PN: AG739A)
- 400GB compressed capacity in half-height form factor
- Ships with Data Protector Express Software, One Button Disaster Recovery, a 1U Rackmount Kit, and a Host Bus Adapter

Get the full story in the IDC white paper at hp.com/go/sim7
or call 1-866-545-0297

hp

1. IDC White Paper sponsored by HP, Gaining Business Value and ROI with HP Systems Insight Manager, Doc #206761, May 2007. 2. Prices shown are HP Direct prices; reseller and retail prices may vary. Prices shown are subject to change and do not include applicable state and local taxes or shipping to recipient's address. Offers cannot be combined with any other offer or discount and are good while supplies last. All featured offers available in U.S. only. Savings based on HP published list price of configure-to-order equivalent ($3627 - $1378 instant savings= SmartBuy price $2249). 3. Financing available through Hewlett-Packard Financial Services Company (HPFS) to qualified commercial customers in the US and subject to credit approval and execution of standard HPFS documentation. Prices shown are based on a lease 48 months in term with a fair market value purchase option at the end of the term. Rates based on an original transaction size between $3,000 and $25,000. Other rates apply for other terms and transaction sizes. Financing available on transactions greater than $349 through October 31, 2007. HPFS reserves the right to change or cancel these programs at any time without notice. Intel, the Intel Logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. © 2007 Hewlett-Packard Development Company, L.P. The information contained ~~herein~~ is subject to change without notice.